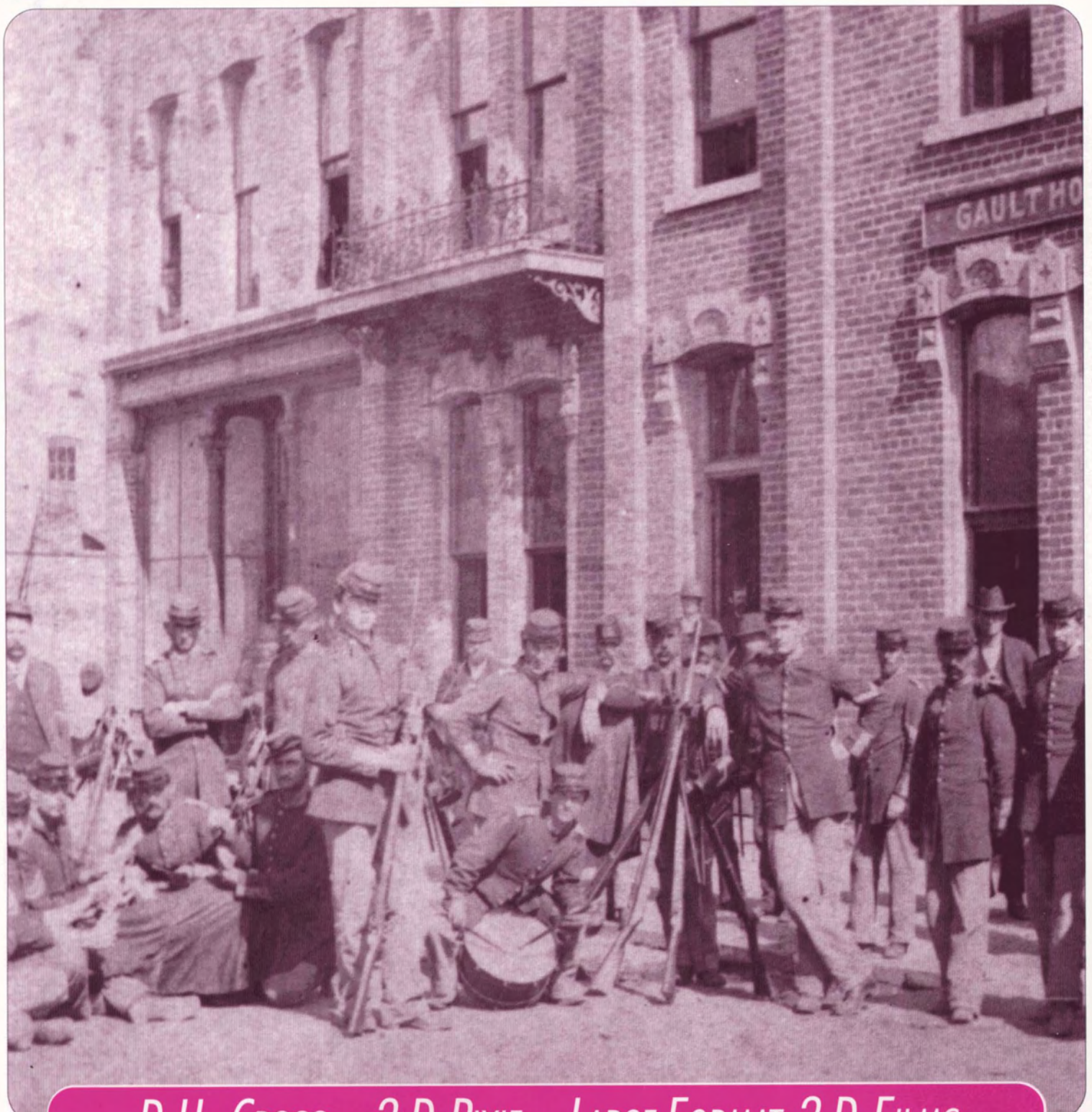
THE MAGAZINE OF 3-DIMENSIONAL IMAGING, PAST & PRESENT

STEREO WORLD

January/February 1999
Volume 25, Number 6

A Publication of
NATIONAL
STEREOSCOPIC
ASSOCIATION, INC.



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ASSIGNMENT 3-D

An Invitation to Share Your Best Stereo Images with the World!

Two Animal "Favorites"

Largely by coincidence, our selections this time are both animal shots. In fact nearly half of the recent submissions to this page have featured animals in one way or another—live, stuffed, or sculpted.

No Deadline

We're still asking you to send in "One of your favorites" from among all the stereo images you've ever photographed, drawn or otherwise generated. That's the extent of the category. Entries simply need to be images you find special somehow—something you'd like to share with other members even if you can't easily explain why. If you wish, feel free to send up to six stereos for us to do the selection from a few of your favorites. As yet, no deadline has been set for this very open Assignment in the hope of eventually sharing a wide variety of interesting views from more readers.

The Rules:

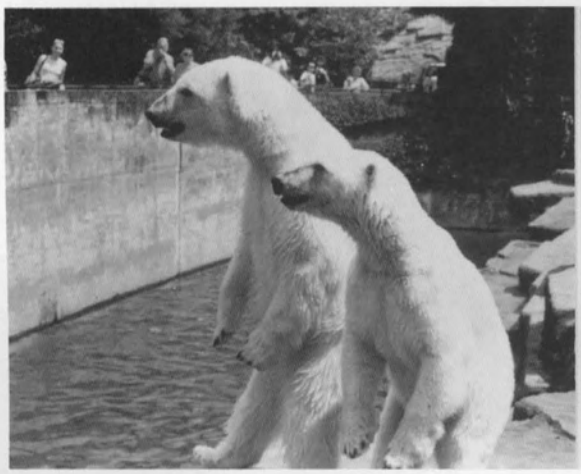
As space allows (and depending on the response) judges will select for publication in each issue at least two of the best views submitted by press time. Rather than tag images as first, second or third place winners, the idea will be to present as many good stereographs as possible from among those submitted.

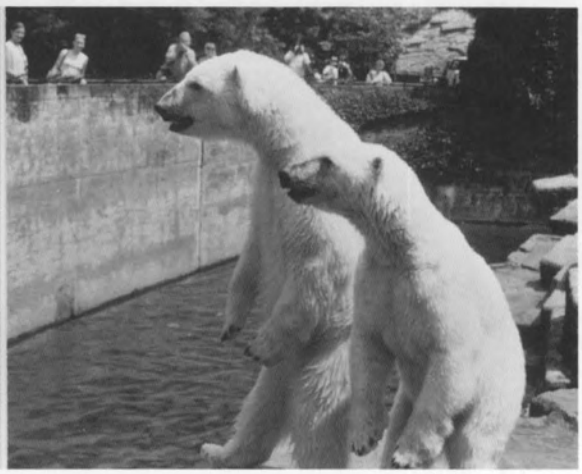
Any image in any print or slide format is eligible. (Keep in mind that images will be reproduced in black and white.) Include all relevant caption material and technical data as well as your name and address. Each entrant may submit up to 6 images per assignment.

Any stereographer, amateur or professional, is eligible. Stereos which have won Stereoscopic Society or PSA competitions are equally eligible, but please try to send views made within the past eight years. All views will be returned within 6 to 14 weeks, but *Stereo World* and the NSA assume no responsibility for the safety of photographs. Please include return postage with entries. Submission of an image constitutes permission for its one-use reproduction in *Stereo World*. All other rights are retained by the photographer.

Send all entries directly to: ASSIGNMENT 3-D, 5610 SE 71st, Portland, OR 97206.

"Iron Bars Do not A Prison Make..." by Elliott Swanson of Bremerton, WA, was taken with an RBT S1 on Kodak Elite 200. The high contrast of that film dramatically emphasizes the matching reds of the plastic can at left and the painted plywood behind the bright green bars. (Like our reproduction, the goat is black & white.)





These polar bears at the Vienna Zoo caught the attention of Otto Willau of Satgasse, Austria, with their twin-like pose.

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Volume 25, Number 6 • January/February 1999

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ON THE COVER

D.H. Cross, "C.O. K. 3-Regt.-I.N.G." Soldiers, guns and a drummer boy in downtown Des Moines, Iowa. Milton A. Miller collection. This view is one of many by Cross reproduced in Daniel Hubbard Cross: Photographer and Musician, 1836-1918 by Lynn Marie Mitchell.

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EDITOR'S VIEW

Comments and Observations

John Dennis

This Could be the End of the *World* for You...

...unless you dig out that NSA renewal form and send it in now! The upcoming historical features and enhanced coverage of current news mentioned in the renewal letter are only a *part* of what's in store for those getting our 25th anniversary volume. (There's literally not room to go into it all here.)

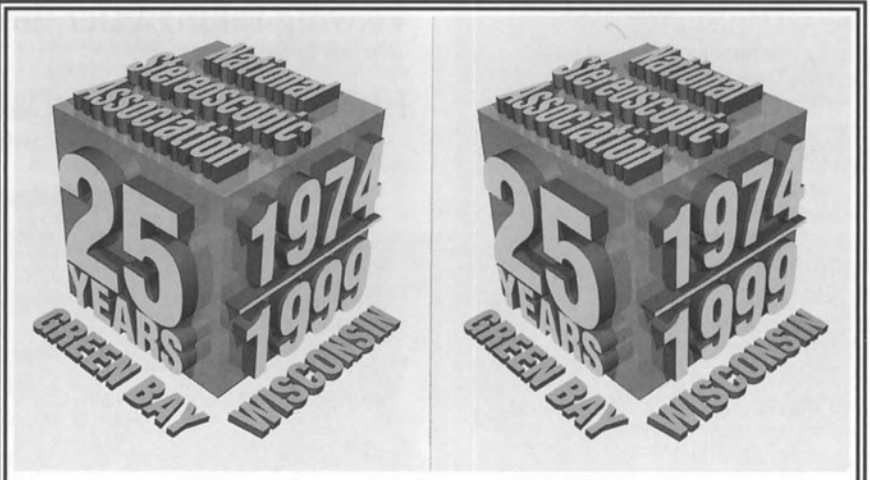
If you're concerned about the difference in PO Box numbers on the renewal form vs. the pre-addressed envelope, don't be. The Post Office changed our box from 398 to 399 some time ago, but we had a stock of envelopes with the old number which we didn't want to re-print or toss out. The people at the small Sycamore, OH, Post Office understand the matter and make sure we get all our mail.

Tornadoes Then & Now

Media coverage of the May, 1999 tornadoes in Oklahoma provided a dramatic reminder of not only how strong and deadly these storms can be, but also of how quickly accessible the damaged areas are to both rescue teams and photographers. Compared to massive earthquakes or hurricanes, tornadoes produce concentrated, eerily localized destruction that's nearly impossible to ignore in video or still images. Today's nearly street-by-street tracking and forecasting has enabled both amateurs and professionals to chase and tape active tornadoes for images and data only dreamed of a few years ago.

By coincidence, this issue's feature article by Lynn Marie Mitchell covers the work and life of Daniel Cross, who stereographed the aftermath of a tornado that hit Grinnell, Iowa, in 1882. Then as now, the destruction was so complete and yet accessible that reporters and photographers (many with stereo cameras) flocked to the scene. The effect of a tornado on a populated area resulted in irresistible (and probably profitable) images—so many, in fact, that frequent *Stereo World* contributor Bruce Hooper provided an article on the coverage. As Daniel Cross produced many of the best of these views, we included the Grinnell Tornado article as a lengthy side-bar to the article on Cross himself.

If you have comments or questions for the editor concerning any stereo-related matter appearing (or missing) in the pages of Stereo World, *please write to John Dennis, Stereo World Editorial Office, 5610 SE 71st Ave., Portland, OR 97206.*



Green Bay

Where Stereo's Fine in '99!

July 8-12, 1999

All NSA '99 Convention material and forms are available on the new convention web site:

www.dddesign.com/3dbydan/nsa99

Or, contact Convention chairman Harry Richards, 11506 N. Laguna Dr., Mequon, WI 53092,

hjrich@execpc.com

Watkins Exhibit in 3-D

A major exhibition of the work of Carleton Watkins will run through the summer of 1999 at the San Francisco Museum of Modern Art. While Watkins' large format prints and panoramas of 19th century west coast cities and scenery are of course featured, his stereography is not only included but is *emphasized* in SFMOMA publicity and is even inherent in the title of the exhibit itself—"Carleton Watkins: The Art of Perception".

Following praise for Watkins' pioneering photographic skills and artistry, a museum press release reveals, "Watkins made more images in stereo than in any other format, inventing imagery that made spectacular use of its three dimensional effects." Information like that has all too often been treated like some embarrassing scandal to be politely ignored in exhibitions of work by 19th century photographers at other institutions.

Far beyond simply acknowledging Watkins' stereography, the SFMOMA exhibit goes to considerable effort to actually present it IN 3-D to visitors. Along with original stereoviews displayed in stereoscopes, 200 Watkins views will be available via an interactive computer database on 12 computer viewing stations. Organized by year, subject matter and region, the views will be seen in 3-D using LCD glasses with a software interface designed by StereoGraphics.

Carleton Watkins: The Art of Perception will be on view from May 28 through September 7 displaying Watkins photographs from institutional, corporate and private collections across North America. A 228 page catalog by former NSA President Peter Palmquist (*SW* Vol. 10 No. 1.) will be available in paperback for $34.95 or clothbound for $60.00 at the museum store or on the museum website: www.sfmoma.org.

For more information, call (415) 357-4000. SFMOMA is open daily (except Wednesdays) 10am - 6pm (Thursdays until 9pm). Admission is $8.00 for adults. Thursday evenings are half price and the first Tuesday of each month admission is free. The San Francisco Museum of Modern Art is located at 151 Third Street, San Francisco, CA 94103

Following the premiere as SFMOMA, the exhibition will travel to the Metropolitan Museum of Art in New York (October 11,1999 - January 9, 2000) and the National Gallery of Art in Washington, DC (February 6 - April 30, 2000).

View-Master At Green Bay

A number of people and products representing Fisher-Price and View-Master will be present at the 1999 NSA convention in Green Bay, Wisconsin, July 8-12. The new View-Master Virtual Viewer will be available for inspection and comment. (It will come in five colors and retail distribution should begin sometime in June. See the *View-Master* column in this issue.)

Representatives of the company will speak to the membership about plans for future designs and projects, including a discussion at the View-Master meeting. View-Master participation will even extend to the Spotlight Auction, where a special 60-year anniversary VM viewer will be donated.

Upcoming National NSA Conventions

1999

Green Bay, WI — July 8-12

2000

Mesa, AZ — July 6-10

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The Only National Organization Devoted Exclusively To Stereo Photography, Stereoviews, and 3-D Imaging Techniques.

Daniel Hubbard
Photographe

by Lynn Marie Mitchell

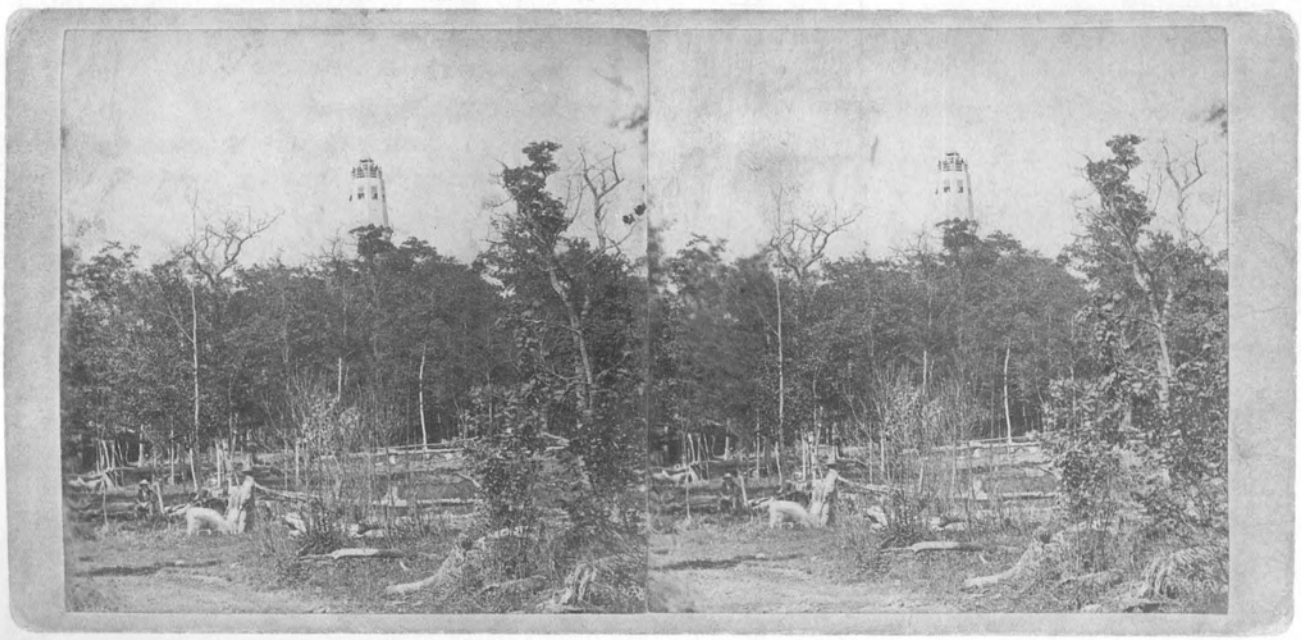
Among the areas of history and research which pertain to nineteenth century photography, one which appears to have limited research and discussion is that unique association of individuals who have been both professional photographers and musicians. It was the Civil War that most lent itself to this atmosphere, and that later expanded to men who were enlisted in the army during the later part of the nineteenth century. One such example and one of the few published works falling within this category is the book written in 1965 by Maurice Frink entitled *Christian Barthelemess: Photographer on an Army Mule*.[1] Another person who has more than qualified for a place of esteem among that combination of both nineteenth century photographers and musicians is Daniel H. Cross, originally a native of Bennington, Vermont.

To this date, nothing has been written about Daniel H. Cross, who spent over sixty years in the field of photography; working not only as a photographer, but as an inventor and a mentor. As a photographer, he began his career by learning the daguerreotype and ambrotype processes. As an inventor, Cross was involved in the development of the gelatin dry-plate process. As a mentor, he taught the art of photography to his younger brother, the prolific Great Plains photographer William R. Cross from Nebraska, and later, South Dakota.[2] He was also influential in the photographic career of his lifelong best friend and fellow musician, Brainard (Bernard) F. Childs.[3]

Daniel was born on February 2, 1836, in Shaftsbury, Vermont, the

Detail of Bennington Observatory view, showing people at the top and in upper windows.

D.H. Cross, Bennington and Surroundings, "Observatory". (Author's collection)



Cross:
and Musician, 1836-1918

eldest of four children born to David and Lucinda (Slocum) Cross. His grandfather, Major Elihu Cross, had won distinction in the Revolutionary War, and in recognition of his services was promoted to Major. The Cross family was one of the most prominent from the Shaftsbury-Bennington area.[4]

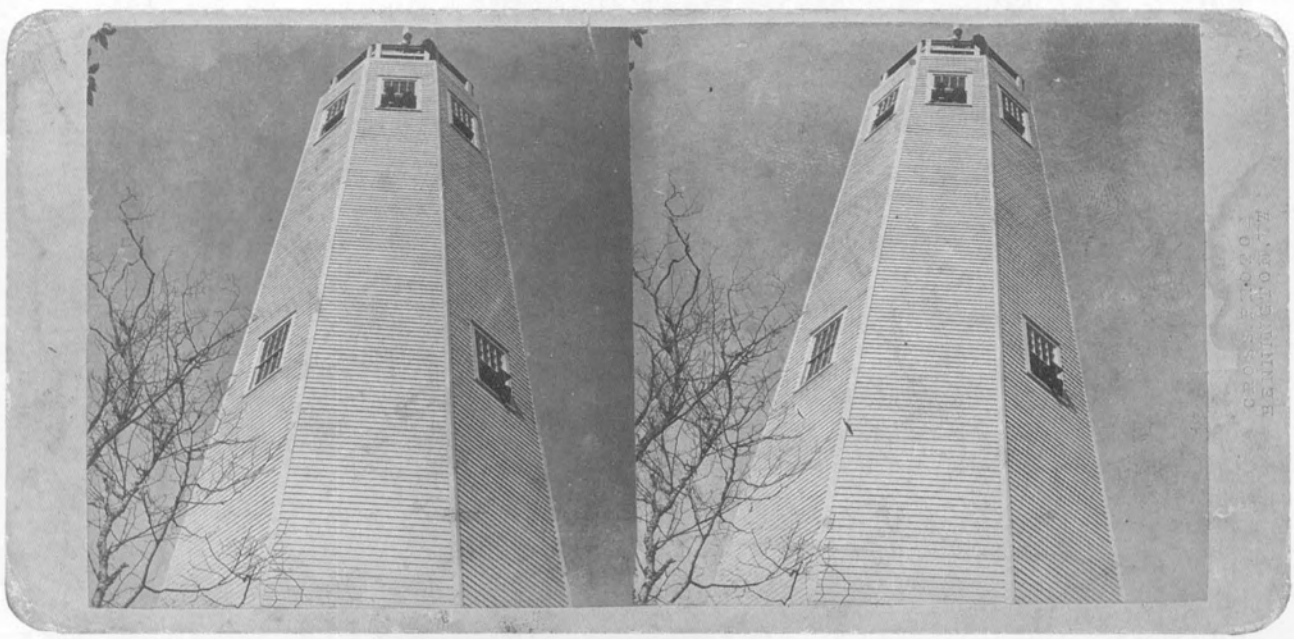
Daniel first became involved in photography in 1855, at nineteen years of age, when he moved to Des Moines, Iowa and learned the daguerreotype process. Soon afterward, he was one of the first in the State of Iowa to master the ambrotype method.[5] By 1857, he was traveling and advertising his skills as a photographer. In Jefferson, Wisconsin, some of the earliest newspaper information representative of that era noted Daniel's arrival:

> For One Week Only. - D.H. Cross, decidedly the best Ambrotype and Photograph artist that ever visited Jefferson, whose life-like and highly finished pictures have given much general satisfaction to all who have called his talents into requisition, designs to remain one week longer, thereby giving an opportunity to those who have not already availed themselves of procuring their own likeness or that of their friend or relatives. We have tested his artistic skill in our own family, and have no hesitation in recommending him to others, believing that he is worthy of unlimited patronage. So don't let this opportunity slip. His rooms are over Fryer's Brick Store.[6]

Daniel returned to his home state of Vermont sometime during 1859-1860, and continued to work within the field of photography. It is known that he was a mentor to his younger brother, William Richard (W.R.), who began his apprenticeship under the guidance of his older brother.[7]

The experience and knowledge that the younger Cross gained from working with his older brother allowed him to develop and prosper as a photographer within his own right, particularly as a western photographer of American Indians. Information indicates that W.R. worked as an apprentice/photographer for almost seven years in Bennington before he moved west to Omaha, Nebraska in 1867.[8] From there W.R. successfully relocated to other towns including Creighton and Niobrara, Nebraska, and Hot Springs, South Dakota. The late William C. Darrah, author of *The World of Stereographs*, referred to W.R. Cross as "one of the most prolific and unappreciated western photographers."[9] Additionally, he noted that he had

D.H. Cross, the Bennington, VT, observatory tower from its base.
(Stuart Butterfield collection)



C.R. Cross, "Wilcox Shoe Store" in Bennington, VT. (Stuart Butterfield collection)

recorded a trade list of more than two thousand views. W.R. was an active western photographer for over forty years.

With the beginning of the Civil War, Daniel, then twenty-five years of age, voluntarily joined the 2nd Vermont Regimental Band on 20 June 1861, at Bennington, Vermont, declaring photographer as his occupation at his enlistment.[10]

The 2nd Vermont consisted of twenty-three men, all of whom were volunteers. One of these fellow musicians, Brainard (Bernard) F. Childs from Wilmington, Vermont, became a photographer under the tutelage of Daniel Cross, as well as his life-long friend.[11] The musicians of the 2nd Vermont remained together until they were discharged at Camp Griffin, Virginia, on 18 December, 1861, at which time the regimental bands were dismissed by the Army as an unnecessary expense.

Both visual and written evidence indicates that Cross and Childs first began working in partnership during the Civil War (approximately 1862) after their regimental

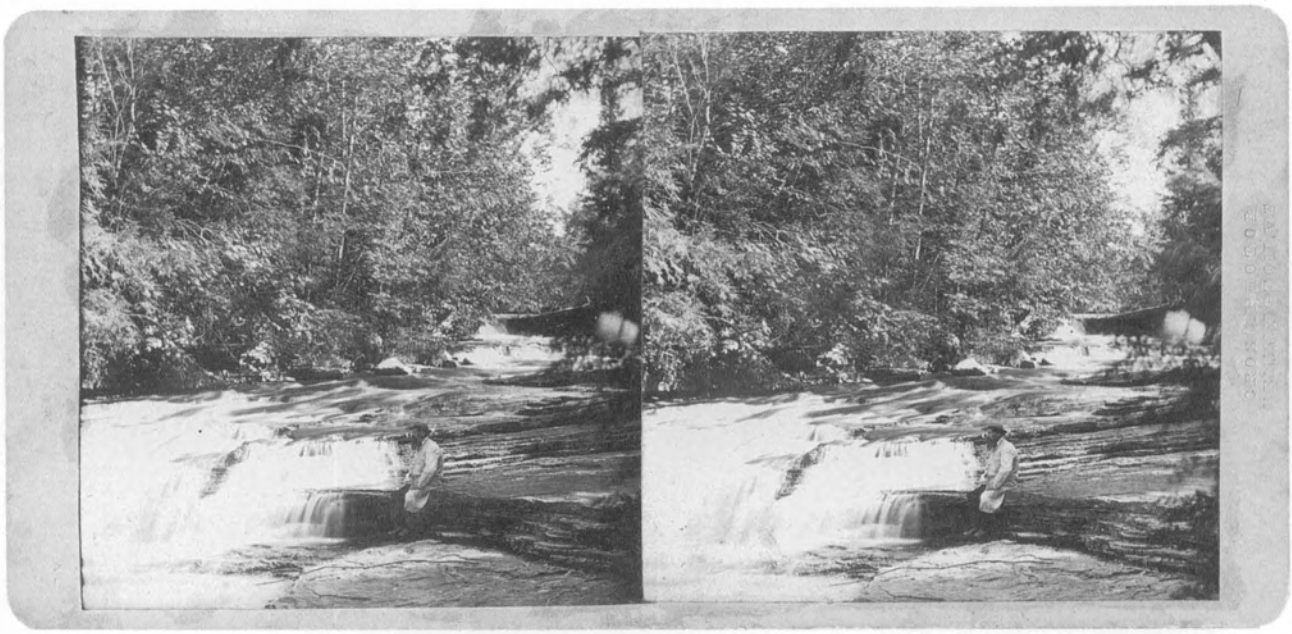
Stereo Documentation of the 1882 Grinnell, Iowa, Tornado

by Bruce Hooper

Like something out of the *Wizard of Oz* (1939) or Buster Keaton's *Steamboat Bill, Jr.* (1928) or the cyclone scene in Harry Langdon's *Tramp, Tramp, Tramp* (1926), the Grinnell, Iowa, tornado of June 17, 1882, virtually destroyed Grinnell and received a lot of press coverage as well as photographic coverage during the aftermath. This disaster follows along a pattern similar to what occurred after the Johnstown Flood seven years later, although everything is on a much smaller scale.

Grinnell, Iowa, is located in Poweshiek County, Iowa. The town was named after Josiah Bushnell Grinnell, a Congregational minister from New York City, who came west in March, 1854, accompanied by Dr. Thomas Holyoke of Scarsport, Maine, and the Rev. Homer Hamlin of Hudson, Ohio. They founded the settlement that would become Grinnell out on the prairie between the Iowa and the Skunk Rivers. Two important reservations were made; that land was to be set aside for a col-

D.H. Cross No. 56, "Res. of Mrs. Clemment; 2 children killed, Mrs. C. wounded." This series of disaster views so unlike other Cross work and important enough that issued them on special mounts in both standard and ca net sizes. View No. 3 from the Charles Bierstadt series the tornado was printed from this same negative in an arch-top, standard size format.
(Courtesy of Burling Library, Grinnell College.)



D.H. Cross, "Wood Stream Cascade in Bennington." The man seated on the rock is not identified. (Stuart Butterfield collection)

band had been discharged and that Daniel continued working for the army as a photographer for an unspecified period of time.[12] An existing carte de visite depicting a Surgeon/Officer from the 14th Pennsylvania Regiment has the advertisement on the back "Photograph taken by Cross & Childs, Camp Griffin, Virginia". This verifies that they were operating a gallery together during the war.

Exactly how long Cross and Childs remained in partnership is not known, but they did work together as partners at least twice. Childs' pension records indicate that he and Daniel also spent a short period of time working together in the photographic portraiture business in Bennington, Vermont, until sometime late in 1865. From there Childs moved for a brief period of time to Marblehead, Massachusetts, and in 1866 was operating a photographic studio at 153 Washington Street known as Childs & Adams.[13] In 1867 he was the sole proprietor of

D.H. Cross, "East Bennington" as seen from a hillside road on what appears to be a very cold winter day. (Stuart Butterfield collection)

the gallery; he relocated from Massachusetts to northern Michigan's Keewenaw Peninsula around 1867-1868.[14]

On New Years Day in 1866, in Brattleboro, Vermont, Daniel married Elizabeth (Lizzie) A. Newman, a native of Newfane Township, Windham County, Vermont.[15] Present at the wedding was his friend B.F. Childs. Their first child, a son named Arthur Newman, was born on 3 May, 1869, and died six months later. Their second child, also a son named George S. was not born until 8 April, 1872.

The 1870s marked a decade of transition for Daniel Cross and his family, and available information about him is sporadic at best. Sometime in 1872, Daniel moved from Bennington, Vermont, to Chicago, Illinois, while continuing to work in the photographic profession. Daniel is listed in the Chicago City Directory from 1873 to 1878. The listings are as follows:

lege campus, and that no liquor could be sold in the town.

Grinnell College, an undergraduate, four year college, was founded in December, 1855, and in 1859 merged with Iowa College of Davenport. The college is the dominant factor in the life of Grinnell and comprises 95 acres and 57 buildings. In 1882 not only was much of Grinnell destroyed by the tornado, but most of the college as well. The population of Grinnell in 1900 was 3,860 and in 1995 was around 8,000.

Before the storm struck, an hour or more before sunset, the northern sky was hung with conical, downward-pointing clouds or funnel clouds. After sunset and even after darkness the western sky was "lurid", "brilliant" and "unearthly". Almost after the brilliant apparition in the west had disappeared the storm broke. It was accompanied with roaring like thunder. Chimneys, trees, houses and barns began to fly like leaves. People took to their storm cellars.

The rain came in floods. The wind, rain and blinding lightning continued furiously for about half an hour, then stopped. When the storm was over the northwest quarter of town was flattened. The path of the storm was fairly narrow, but scarcely anything was left standing within its limits. The fury of the storm was most terrific in the portion of Grinnell north of Fifth Avenue. It first entered the town from the west and moved a little northeast until it reached Main street. It then curved to the southeast, demolishing the college buildings and several houses on the east side of town. Then it crossed the C.R.I.&P. about a mile and a half east of town where it met a westbound freight train that it completely demolished.

As it passed southeast across the country it demolished farm houses, fences, and barns. It struck Malcolm in its northern half and wrought destruction as complete as in Grinnell. The track of the storm center, as it crossed Grinnell, averaged about two blocks in width. Damage outside the narrow track was small. The storm had an explosive force, frequently carrying out one side or end of a

D.H. Cross No. 21, "Residence of Chas. wessels, lookin Northwest." (Lynn Marie Mitchell collection.)

D.H. Cross, "Looking Out the West Rd." includes two unidentified men standing in the muddy street. (Stuart Butterfield collection)

D.H. Cross, photographer, r 947 Wabash Av. (1873); Daniel H.Cross, photographer, Charles D. Mosher, r. 18 Evans Av. (1874-75); Daniel H. Cross (Cross & Carson), r. 18 Evans Av. (1875-1876); Cross & Carson (D.H. Cross & James Carson), photographers, 224 State; Daniel H. Cross, photographer, house 18 Evans Av. (1876-77, 1877-78); Daniel H. Cross, photographer, 339 W. Madison, house 18 Evans Av. (1878-79).

Unfortunately, there is little information available about his business ventures or partnerships, and even less about him personally. His other two children, both sons, were born during the years in Chicago. His third son Clarence H., was born on 12 May, 1874, and his youngest son, Brainard Childs Cross (named after his friend) was born on 14 August, 1877.

After seven years in Chicago, Daniel moved his family in 1879 to Iowa, where he opened a gallery in Indianola, a small town approximately fifteen miles south of Des Moines. During this period of time

Tornado of June 17, 1882, at Grinnell, Iowa.
21 Residence of Chas. Wessels, looking Northwest
Comprising over 50 Stereo Views
By D. H. CROSS,
DES MOINES, IOWA.

This card has the "Cross Photo Bennington, VT" blindstamp on the right side, but the group or the occasion for drinking from large jugs (note the jug on the ground ready for refilling with funnel) are not identified. (Stuart Butterfield collection)

Cross achieved notable success both as an owner of a photographic studio "Cross & Sons" and with his important contribution to the development of the gelatin dry plate. During 1879-1880, Daniel was working on a significant development in the history of photography, the acceptance of the gelatin dry plate by the American Photographers Association (APA). At the annual meeting of the Association in Chicago in 1880, the committee that had been appointed by the APA to investigate the issue of gelatin dry plates voted to accept samples of the products by manufacturers. Cross was one of three firms that submitted a sample to the association, the other two were John Carbutt of Philadelphia, and Cramer and Norden of St. Louis.[16]

By the time the endorsement from the association was complete, Daniel had relocated from Indi-

house. Within the space of twenty feet one house would be thrown to the west and another to the east. Most of the buildings were crushed like egg shells and reduced to splinters, although a few were lifted and turned around. The storm killed 39 people and injured countless others. The City Hall became a temporary morgue and the Central School House a temporary hospital.

Soon afterwards the City Council appointed a committee to make an official canvass of damages to property in and around Grinnell that was completed by June 23rd. A building committee was also formed that furnished both labor and material for repairs and kept a running account. Meanwhile, Grinnell College was just beginning to receive small donations towards rebuilding, so that work could begin as soon as the ruins were cleared away. Expressions of sorrow and sympathy in telegrams or letters were sent to the college from various colleges from across the country, including Mt. Holyoke Seminary, Chicago Theological Seminary, Cornell college, and Amherst College.

By the end of June the committee summed up tornado losses in Grinnell and vicinity at about $288,000. Thanks to the building committee new houses, barns, etc. went up not long after the damage from the storm had been cleared up. Meanwhile, the amount of insurance expected on the college was estimated at nearly $10,000.

In early July, Charles Fagan with a gang of twenty men began sorting out and piling up rubbish and getting the ground clear for builders at the college. The clearing of of West College was about completed and nearly 75,000 bricks were saved. Other items from building remains were recycled and used in new buildings. An estimated cost of $400 was determined to cover the cost of getting West College ready for the builders.

During July, Sergeant John P. Finley of the U.S. Signal Corps sent out a circular to nearly every post office box in Grinnell and vicinity containing more than 80 questions relative to

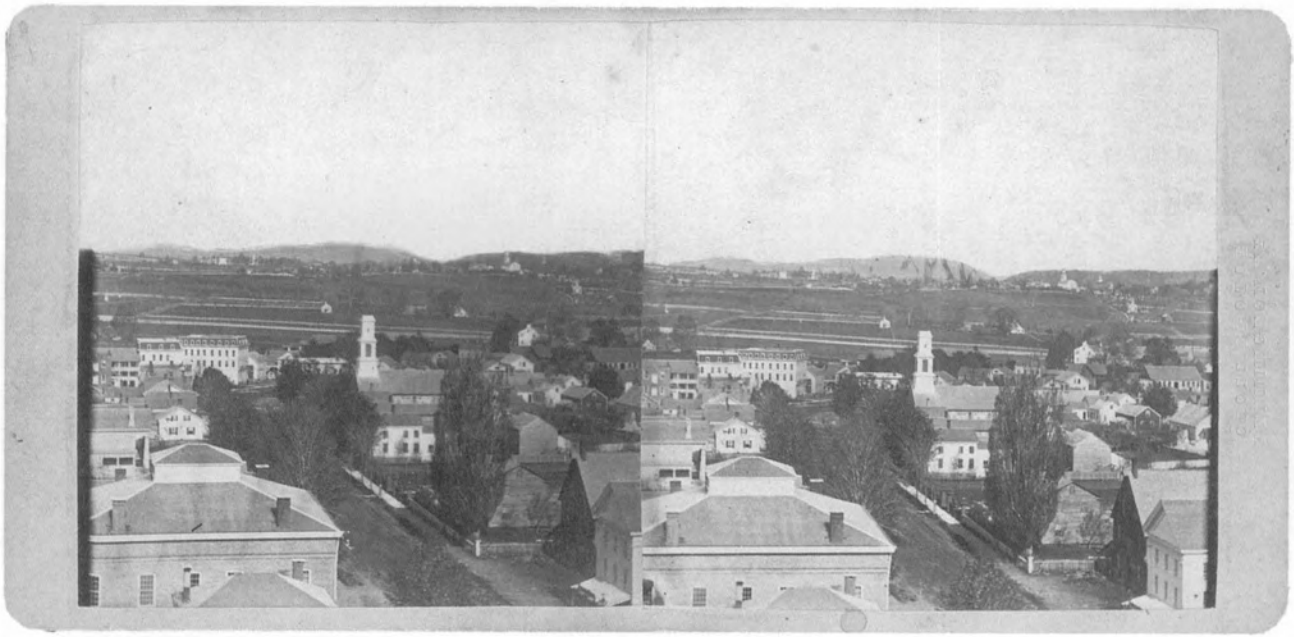
D.H. Cross No. 49, "Residence of Mr. Hughf, looking E 2 killed. (Lynn Marie Mitchell collection.)

D.H. Cross, "Residence of A.B. Valentine, Bennington, Vermont."
(Stuart Butterfield collection)

anola to Des Moines, Iowa, and had opened up a new business beginning in January, 1880.[17] During the 1880s, Cross was busy manufacturing dry plates; he advertised in the Iowa State Gazetteer and Business Directory for 1884-5, as "Cross, Daniel H., Photographer and Manufacturer of Gelatin Plates".[18] Additionally, Daniel maintained his studio work and continued to produce stereoscopic views as well. One of his largest stereoscopic series that still survives was done on the Grinnell (Iowa) tornado disaster in 1882. Cross produced over 58 stereographs in this series. It appears that within two years Cross was not as active as a photographer but rather was concentrating his efforts as the proprietor of "Photographers Gelatine Dry Plates."[19] By 1891, Cross was no longer operating his dry plate company, but was again actively working as a photographer.[20]

Daniel Cross resided in Iowa for approximately twelve years. While

Tornado of June 17, 1882, at Grinnell, Iowa.
49. Residence of Mr. Hught, looking East; 2 killed.
Comprising over 50 Stereo Views
By D. H. CROSS.
DES MOINES, IOWA.



D.H. Cross, "Bennington & Part of Centre Bennington looking west from Steeple of Baptist Church." (Stuart Butterfield collection)

the majority of information available reflects his photographic activities and endeavors, some information reveals personal events and interests. The Cross family experienced a personal tragedy in 1882 when a second child died—their son Clarence was killed in a railroad accident when he was eight years old.[21] Cross was also a member of the society known as Des Moines Secular Union, of which he had the honor of being the first president.[22]

Daniel and his family left Des Moines in 1892 for Rockford, Illinois, and lived there until approximately 1895. Little is known about the years he lived there. From Rockford, Cross relocated for the last time, to the small village of Highland, Wisconsin, where he lived for over twenty-four years.[23]

The years that Daniel Cross and his family lived in Highland, he was active both socially and professionally. In addition to his photography business, Daniel was involved as a professional musi-

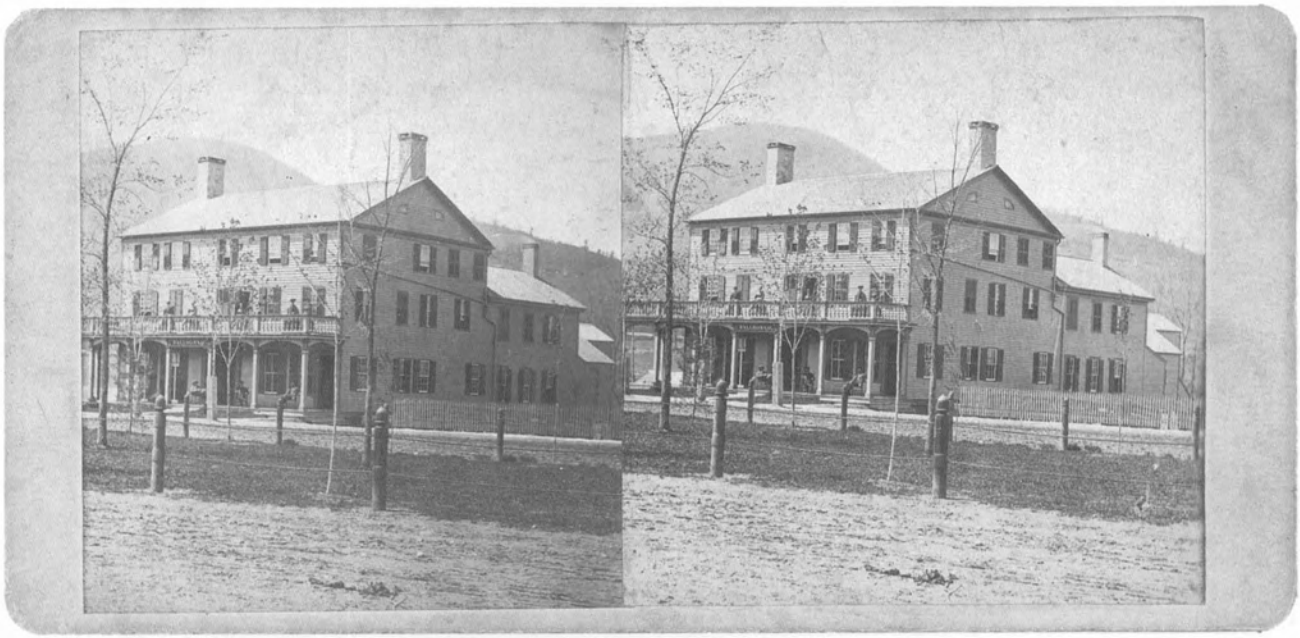
the tornado so that he could collect facts for a report on the storm. A U.S. Signal Corps report on tornadoes and destructive storms in 1882 noted that the most terrific storm was the one in Iowa that destroyed the town of Grinnell. Examination of heavy articles such as stones and railroad cars lifted by this storm estimated the force of the wind within the vortex to be about 200 pounds to the square foot. Professor McComber of Ames College prepared the report on the destruction of Grinnell and said that it was unnecessary to introduce electricity as a factor.

The first new building constructed on the college campus was also begun in July. At the end of July a reporter from the *Newton Journal* noted that the destruction from the tornado was still evident, although hundreds of mechanics and laborers lined the streets in the early evening, while at all points new roofs or buildings were being constructed. The debris of the old college was nearly all gathered up, while its walls still stood and were unsafe.

In August Phoenix Insurance Company of Brooklyn, NY and the North British and Mercantile Insurance Company promptly adjusted and paid their recent losses resulting from the fire after the tornado to Grinnell College. By this time Grinnell was being rebuilt rapidly on the north, east and west. In September, Grinnell College opened at the Stone Church because a lot of the new college buildings had yet to be completed. Construction was still going on at East and West Colleges.

In October the only remaining evidence of the tornado was on the premises of Messrs. Craver and Sanders, directly east of Mr. L.C. Phelps'. At Grinnell College, the roof of East College was nearly completed and they were working on the interior of the building. The ruined walls of Center College were all torn down, and the foundation of West College was nearly completed. The destruction of the tornado in June was replaced by rapid building in Grinnell between July and October, leaving little evidence of the damage by October.

James Everett No. 6, "Dr. Grewell's house. Five of the fa ily held in the ruins but unhurt."
(Courtesy of Burling Library, Grinnell College.)



D.H. Cross Bennington & Surroundings, "Walloomsac House Proprietor, A. Robinson." (Stuart Butterfield collection)

cian (he loved the violin)—he was in partnership with the local music teacher, Louis Bahl. Together they formed an orchestra, "Bahl & Cross." which continued for eight years.[24]

Both of Daniel's sons, George and Ben (Brainard C.), followed their father into the photographic profession, as well as music and theater. For a short period of time, they operated a photographic business in Highland called Cross & Sons. George, the oldest son, then left for Europe around 1895-96 to study music in London. While there, he contracted tuberculosis and returned to Highland in November of 1898. George died of the disease on 23 February, 1899, at twenty-seven years of age. The *Dodgeville Chronicle* noted his passing:

> Death has violated our village and taken from us George Cross, beloved son of Mr. and Mrs. D.H. Cross. He went to London to finish up his musical education a few years ago, and while there he contracted consumption. His parents

D.H. Cross, "North St. from corner of Main" in Bennington, VT.
(Stuart Butterfield collection)

> got him to come home and he arrived here in November....He leaves his parents and one brother besides a host of friends to mourn his early departure. He was 27 years of age and was the idol of his parents and friends.[25]

Daniel and his only surviving son, Ben, continued working together renaming their business "Cross & Son", which they operated through 1915. They were also running temporary photo galleries in many of the nearby towns...

> Cross & Son will go to Livingston to open up a photo gallery for three weeks. They are up-to-date and turn out extra good work. Go and examine it and you will be convinced. They will be there thru the 24th of June.[26]

In addition to working with his father, Ben was the manager of the Lynch Opera House, which he ran successfully for over seven years.[27] Daniel remained active in his profession even at the advanced age of 81. In October of 1917, he traveled to Milwaukee to attend a session of the Eastman School of Photogra-

The aftermath of this tornado was recorded graphically by photographers in and around Grinnell. One of the first local photographers on the scene was Arthur L. Child of Grinnell. In 1868 his family had moved to Grinnell where he attended Grinnell college, then began working as an assistant to his uncle, photographer C.L. Walker. In 1881 he bought the studio of Mr. Walker and the following year moved to another location in Grinnell. He was active there from 1881 to 1920. Child unfortunately did not take any stereographs of the damage, but instead published a series of cabinet cards.

One of the local photographers who did take stereographs of the damage was Daniel H. Cross of Des Moines, Iowa. Cross published about 60 very graphic stereographs of the damage, showing residences and other structures flattened by the tornado. Other local photographers who took stereographs of the damage were James E. Everett of Des Moines and J.S. Lovell of Davenport, Iowa. Charles Bierstadt of Niagara Fall, New York, also published a set of stereographs showing tornado damage in Grinnell.

The stereographic coverage of this event is graphic, but the photographers tended to take stereos within the same general area causing duplication of images. I guess this is also true of the stereographic coverage of the Johnstown Flood that happened seven years later.

Sources

Federal Writers' Project, Iowa. *Iowa: A Guide to the Hawkeye State.* New York: Hastings House, 1949., pp. 52, 488-489.

"Grinnell College Profile." *Grinnell Academic Catalog 1995-96.*

Lippincott's New Gazeteer. Philadelphia: J.B. Lippincott Co., 1911., p. 765.

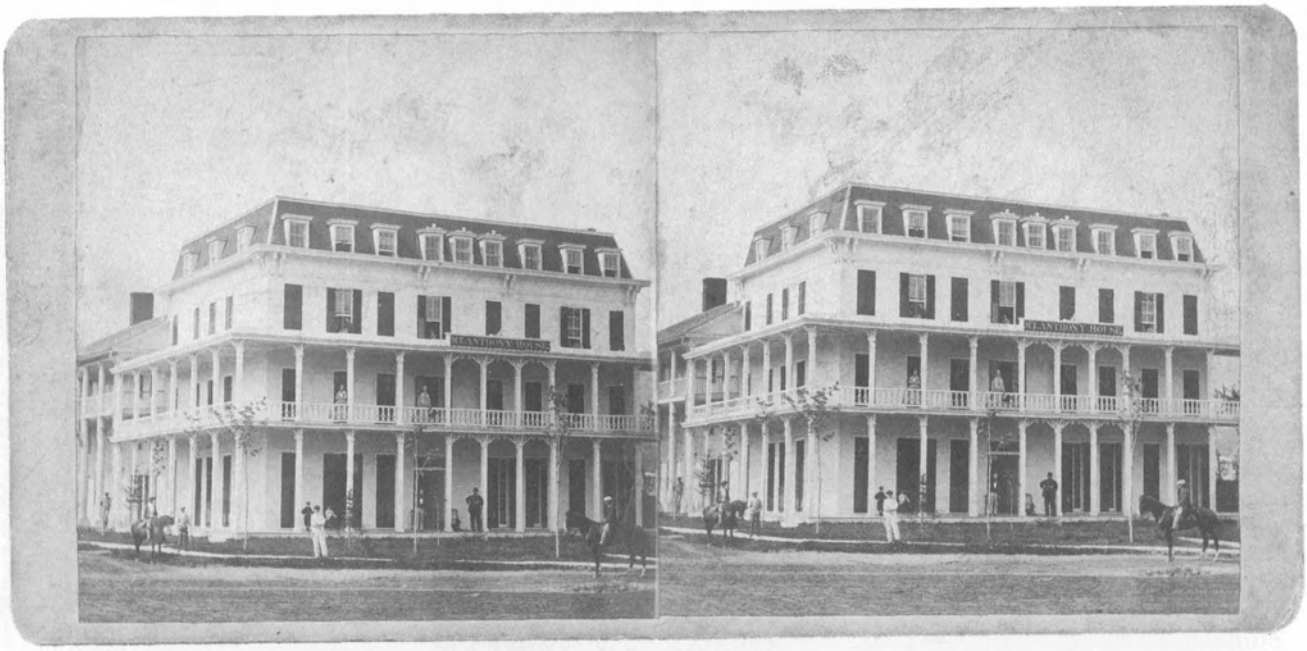
Grinnell Semi-Weekly Herald., June through October, 1882.

Prof. L.F. Parker. *History of Poweshiek County, Iowa.* Chicago: S.J. Clarke Pub. Co., 1911., pp. 696-697.

Portrait and Biographical Album of Polk County, Iowa. Chicago: Lake City Pub. Co., 1890., pp. 762-763.

A selected title list by stereographer of views documenting the aftermath of the Grinnell tornado of June 17, 1882, is available by sending a large SSAE to Tornado List, *Stereo World*, 5610 SE 71st, Portland, OR 97206.

James Everett No. 36, "Horse in midst of ruins."
(Courtesy of Burling Library, Grinnell College.)



D.H. Cross, "Mt. Anthony House" in Bennington, VT. (Stuart Butterfield collection)

phy.[28] Daniel Cross was 83 years old when he died on 5 December, 1918, having spent his lifetime in the photographic profession working as an instructor, inventor, and photographer.

Although Cross was involved in the profession of photography for over sixty years, the existence of his work is not well known or documented. Probably the largest public collection of D.H. Cross photographs is located at the Iowa State Historical Society in Des Moines. This collection of twenty-three stereographs depict the Grinnell, Iowa tornado disaster in 1882 (Cross produced over 58 in this series). A private collector, Stuart Butterfield of Rock Hill, New Jersey, owns 24 stereographic views of early Bennington, Vermont (1860s) and the surrounding area. Cross's early work as a portrait photographer is also evident in the collection of cabinet views in the Shaftsbury Historical Society (Vermont).

The life of Daniel Cross spanned a significant period in the evolution of America. At the year of his birth, the President was the fron-

D.H. Cross, "C.O. K. 3-Regt.-I.N.G." Soldiers, guns and a drummer boy in downtown Des Moines, Iowa. (Milton A. Miller collection)

tier-born Andy Jackson; at his death it was Woodrow Wilson, a former President of Princeton University. His era was marked by an urgent drive to move forward, to explore and open horizons for both the Nation and the American people. Cross, in his dual careers as musician and photographer—and, additionally, his life in the military—was representative of his era. Music and photography both require a meticulous sense of timing, combined with an ability to express personal creativity, in order to achieve the greatness inherent in either profession.

It was this ability in Daniel Cross that J.H. Lewis celebrated in his oration at Cross's funeral:

> His inventive turn of mind led him to accomplishments that gave him undoubted reputation as a genius in his line of work. But his success was not limited to even so broad a field. Rich in mental development, a great reader possessed of discriminating judgment he found time for the study of music and his great and gentle nature found supreme satisfaction in providing for the entertainment of others as much as for himself...."[29]

References

1. Frink, Maurice, with Casey Barthelmess. *Christian Barthelmess: Photographer on an Army Mule.* Norman: University of Oklahoma Press, 1965.
2. *Hot Springs Weekly Star,* Dec. 27, 1907.
3. Mitchell, Lynn Marie. "B.F. Childs' Lake Superior Images." *Stereo World,* Jan./Feb., 1992.
4. *Portrait and Biographical Album of Polk County, Iowa.* Chicago: Lake City Publishing Company, 1890. pp. 762-763.
5. Ibid.
6. *The Jeffersonian,* Oct. 22, 1857.
7. *Hot Springs Weekly Star,* 27 Dec. 1907.
8. Ibid.
9. Mitchell, Lynn Marie. "William Richard Cross, Photographer on the Nebraska-South Dakota Frontier." *South Dakota History,* Vol. 20, No. 2, Summer, 1990. pp. 81-95.
10. Peck, Theodore S., Adjutant-General, Compiler. *Revised Roster of Vermont Volunteers and Lists of Vermonters Who Served in the Army and Navy of the United States, During the War of the Rebellion, 1861-66.* Montpelier, Vermont: Press of the Watchman Publishing Co., Publishers and Printers. 1892.
11. Mitchell, Lynn Marie. "B.F. Childs' Lake Superior Images." *Stereo World,* Jan./Feb., 1992.
12. *Portrait and Biographical Album of Polk County, Iowa.*
13. Ronald Polito, editor. *A Dictionary of Massachusetts Photographers, 1839-1900.* Picton Press: Camden, Maine. 1993.
14. An existing carte de visite taken by Childs and located in the private collection of Greg Drake confirms this. Personal correspondence from Greg Drake to Lynn Mitchell, November 10, 1987.
15. Veterans Administration Pension File. WC 867.268. Cross, Daniel H.
16. Taft, Robert. *Photography and the American Scene: A Social History, 1839-1889.* New York: Dover Publications, 1938. pp. 370-371.
17. *Iowa State Gazetteer and Business Directory for 1880-81.* By R.L. Polk & Co., and A.C. Danser. p. 315.
18. *Iowa State Gazetteer and Business Directory for 1880-81.* By R.L. Polk & Co., and A.C. Danser. p. 380.
19. *Bushnell's Des Moines Directory, Resident and Business Directory of Polk County.* J.P. Bushnell, Compiler. Volume XI. 1886-87. p. 223.
20. *Iowa State Gazetteer and Business Directory for 1880-81.* By R.L. Polk & Co., and A.C. Danser. pp. 430, 1563.
21. *Portrait and Biographical Album of Polk County, Iowa.*
22. Ibid.
23. Veterans Administration Pension File. WC 867.268. Cross, Daniel H.
24. *Wisconsin State Gazetteer,* 1901-02, p. 417.
25. *The Dodgeville Chronicle,* March 3, 1899, p. 8.
26. *The Dodgeville Chronicle,* June 21, 1901, p. 8.
27. *The Dodgeville Chronicle,* Sept. 14, 1906, p. 8.
28. *The Dodgeville Chronicle,* Oct. 26, 1917, p. 8.
29. *The Dodgeville Chronicle,* 25 Dec., 1918.

Israel in 180 Big Anaglyphs

review by John Dennis

Any way you measure it, *Israel In Three Dimensions* is a big publication. Its 160 twelve-and-a-half by nine inch pages filled with 180 images make it the most ambitious effort yet at the use of color anaglyphs in an expensive and prestigious coffee table book. Considering the obstacles to presenting so many stereos of widely varying subjects in this format, the most impressive thing about the book may be that most of its images work well and that several are astoundingly good.

Designed and printed in Israel in 1998 in observance of the country's 50th anniversary, the stereography is by Hermann Miller of Leutkirch, Germany, in collaboration with Israeli photographers Gadi Geffen and Boaz Maullem. Subjects, divided into regional chapters, range from deserts to ski resorts and from Roman ruins to shopping malls. With text limited to minimal captions in Hebrew and English, the book reveals the dramatic variety of environments and habitations (if not the even more complex variety of the population) to be found within Israel's borders.

ISRAEL IN THREE DIMENSIONS: A Photographic Album of Israel's Landscapes in Three Dimensions

Original Creations Ltd., 1998. Hardbound, 13 X 9 inches, 160 pages, 180 color anaglyphs plus 2 viewers. $57.95 plus shipping from Cygnus Graphic. For catalog and ordering information: PO Box 32461, Phoenix, AZ 85064-2461, Tel/fax (602) 279-7658.

Mosques, temples and churches are well represented both inside and out, but no scenes in contested areas or of military subjects are included. The one image hinting at any political sentiment shows the Rabin Square memorial in Tel Aviv, seen through the dark, barren branches of some small trees and including a peace symbol drawn on a podium-shaped stone. This is also one of the most effective anaglyphs in the book, with no color rivalry or ghosting and great 3-D. Several other views (most in full-page size) deserve mention as outstanding examples of both stereography and anaglyphic printing techniques:

"Red Canyon, Eilat Mountains" draws you deep into the page, following the jagged rock walls of the canyon. The tones of the rocks, like the tans, browns and yellows of many of the desert scenes, make this a nearly monotone image, presented as a nearly perfect anaglyph. (Like most of the images in the book, it requires the brightest lighting you can arrange to get the optimum effect and really do justice to the stereographs. Direct sunlight is hard to beat.)

Several images of Masada, including one of a cable car system carrying visitors to the top, are exceptional as well. "Pratzim Valley" includes a natural arch above a dry, forbidding chasm that looks as if it had been designed for a Road Runner cartoon or an SUV commercial.

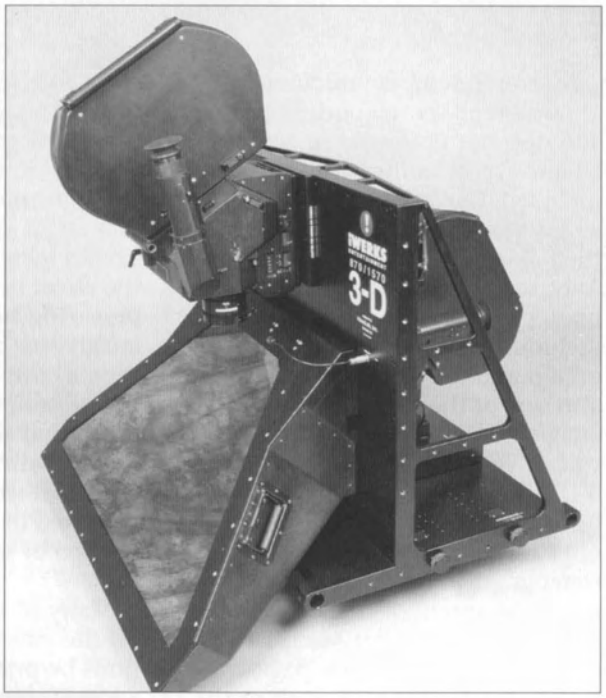
"Bloomfield Garden" is a shot of a fountain in Jerusalem with in-your-face 3-D water and impressively little of the ghosting that can affect so many urban or architectural anaglyphs. The terraced fields and green pastures of "Nahal Dishon" in Galilee likewise shine through the 4-color anaglyphic process in a way that seems to justify (at least for specific examples) the effort involved in selecting and preparing stereographs for color anaglyphic printing. Seldom more than a couple of pages away from such examples, however, are some views that suffer from high-contrast ghosting or color rivalry problems that would never have appeared in black & white stereos printed in specialized anaglyphic inks.

Many of the large pictures bleed off the pages, requiring that captions be printed over the image in a lower corner. These are reasonably unobtrusive, but since (fortunately) they are not printed in 3-D, those surrounded by foreground image planes that float above the page are very difficult to read while wearing the glasses. Those printed over sections of image that fuse *behind* the page float quite readably above the picture.

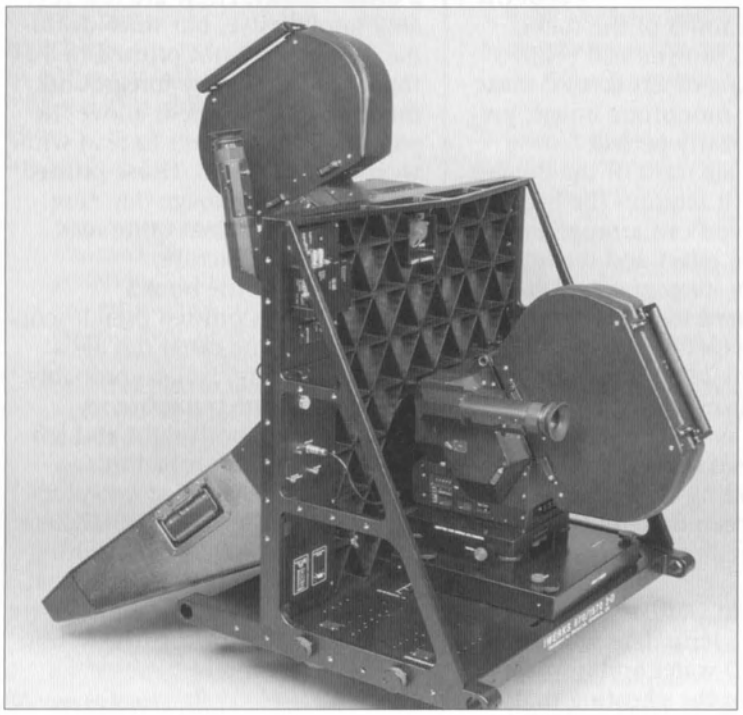
Only one of the book's anaglyphs was printed pseudoscopically, while one other (an aerial view of Tel Aviv) is flat—probably due to the same transparency being used for both right and left images. Seven other pictures appear to suffer from stereo plane distortions introduced somewhere in the scanning process, resulting in certain sections or objects floating above or below the appropriate plane regardless of the orientation of the viewer filters.

(Continued on page 20)

Large Format 3-D Films: From Museum to Mainstream



The heart of the new Iwerks 3-D Camera system is the dual-camera beam-splitter rig, shown here with the company's large-format 8/70 cameras. The rig also holds 15/70 cameras. (The company's innovative new 15/70 camera is not ready at this time.)



by Don Marren

Without question, the most exciting development in the large-format (LF) industry this past year was the introduction of the Iwerks™ Entertainment 3-D Camera System. (For the record, LF films are defined by the industry as those 70mm formats utilizing film with either 8 perforations (8/70) or 15 perforations (15/70). See film frames accompanying this article for a size comparison.) The introduction of this new equipment was immediately welcomed by independent filmmakers who now have an alternate source for renting camera packages to make LF films.

Even before the huge—and surprising—success of *Everest* last year ($85 million worldwide and growing), theater chains were rushing towards moving LF films out of the museum market and into their mainstream multiplexes. The LF theaters were there but the product wasn't, especially the coveted 3-D films. To capitalize on this shift in the marketplace, a flurry of activity began among film producers who were more than eager to participate in the rapid growth of the LF industry. The biggest obstacle, besides hefty budgets for LF 3-D films, was equipment. There was precious little to rent. Imax Corporation had a few 15/70 cameras and rigs (the camera mount), but they were allocated on a priority basis with the company's own productions at the top of the list. This dour situation forced several companies, including Iwerks Entertainment, to seek alternatives including building their own camera equipment.

The Academy of Motion Picture Arts and Science honored Don Iwerks, founder of Iwerks Entertainment, with the Gordon E. Sawyer Award in recognition of his pioneering developments in the film industry. The Oscar was presented to him at the Academy's Scientific and Technical Awards dinner in February, 1998.
©Iwerks Entertainment

The heart of the new Iwerks 3-D Camera System is the company's new rig, which was developed with HinesLab, Inc. (Surprisingly, with a rig as important as this, it has no name for marketability purposes like the HinesLab StereoCam™ for 5/70 and smaller formats, or the IMAX BiClops™. The rig has all of the features producers, directors and cinematographers demand when they make LF films, including the allowance for 8/70 and 15/70 cameras with lenses 40mm - 250mm. An internal mechanism permits independent adjustments of 3-D and the position of images. The convergence adjustment is four feet to infinity, and the inter-axial adjustment is 0 to 4.5 inches. A sync box electronically locks two cameras together, and the rig rents with a wireless remote for convergence and inter-axial changes. The Iwerks rig has all of the typical HinesLab finishing touches like a rigid and relatively light-weight structure that provides for fast and easy removal of cameras.

Iwerks currently has a new, innovative 15/70 camera in production and it should be available soon. In the meantime, Iwerks 8/70 cameras from MMS Design, Inc. (the first cameras built especially for 8/70 format) are a popular choice for 15/70 filming, as 8/70 film can be optically reformatted and blown up to a 15/70 frame. Oddly enough, the Iwerks rig was first used to film sequences for the IMAX 3-D *Cirque du Soleil* film.

Although Don Iwerks, the company's founder, was firmly established in the film industry, we first really became aware of his presence when Walt Disney Productions' 3-D 5/70 film *Magic Journeys* for EPCOT Center was about to go into production. It was the early '80s and 3-D was giving Hollywood a second chance. The results were, not surprisingly, disastrous. Making a 5/70 3-D film was a gamble. Don Iwerks, who was manager of technical development and services for Disney, oversaw the ominously titled "machine shop," along with special photographic effects. The machine shop was the central base where all the special cameras, photographic-effects gear and projectors used in Disney attractions were born and built. Twin 65mm cameras and a rig were needed quickly if the production of *Magic Journeys*, directed by Murray Lerner, was to get off the ground. It finally did, thanks to Iwerks, Lerner, Bob Otto and Steve Hines, who is recognized as the major contributor to this project. (Another rig, designed by Ernest McNabb, was also used.) *Journeys* became a benchmark film that revolutionized 3-D and established wide-screen stereo as a star attraction at theme parks and world expositions.

Don Iwerks went on to establish Iwerks Entertainment in 1986, and, over the years, he pioneered breathtaking developments in motion picture technology. His contribution to the medium was recognized by the Academy of Motion Picture Arts and Science when he was bestowed the Gordon E. Sawyer award at the Academy's

Formats currently used in film production today from top to bottom: Standard 35mm. Horizontal path 8/35, basically Paramount Pictures' 1950s VistaVision process used to shoot many films like White Christmas and Vertigo, used mostly for special-effects shots today. 5/70 is the standard format for wide-screen 3-D films at theme parks. The three large-format film processes are 8/70, 10/70 and 15/70. If 15/70 cameras are unavailable, 8/70 cameras are used, and the film reformatted and blown up to 15/70. The 10/70 format is rarely used, except at planetarium theaters in Japan and at world expositions. Iwerks does have a 10/70 camera called the Imagine 360 Camera with a fisheye lens that "shoots down" to film 360° panoramas.
Courtesy of Imagica and MMS Design, Inc.

Scientific and Technical Awards dinner on Feb. 28, 1998. Earlier, in September, 1997, he was presented with a THEA statuette by the Themed Entertainment Association for lifetime achievement.

To the general public, the name IMAX is recognized as being synonymous with huge screen film images and not Iwerks, probably because the Imax Corporation was first at the gate with LF 15/70 films. The perceived image is not helped by the fact that many LF theaters may have an IMAX sign outside with an Iwerks film playing inside. Does the general public really care? Probably not. Industry types tell us that to avoid any confusion we should simply refer to these film formats as LF 15/70 films, which is a mouthful for most moviegoers. I'm sure the two companies would not appreciate the generic reference.

Today, Iwerks Entertainment is recognized as the leading full-service provider of entertainment systems, support services and film-based software. The company is firmly established around the world with over 250 theaters, including nearly 60 LF theaters (some with Dome screens). The company boasts that nearly one-third of all LF format theaters in the world are Iwerks theaters, and that nearly two-thirds of all 8/70 theaters are theirs. When it comes to simulator rides, it looks like Iwerks has the biggest chunk of the industry with 103 TurboRide™ theaters in operation and 14 in progress. Many are rapidly upgrading to TurboRide3D!® theaters to showcase the company's *Dino Island II 3-D: Escape from Dino Island* and *Journey Through the Centre of the Earth*.

Iwerks Entertainment's entry into LF 15/70 3-D production with *Encounter in the Third Dimension* was joyously welcomed by the film industry, given the dearth of 3-D titles in distribution right now and the plethora of theaters eager to play 3-D product. 1998 was supposed to have been a banner year for LF 15/70 3-D films but that objective was never reached. *Encounter* and *Endangered!* were scheduled for fall release last year, but the former wasn't released until this year, while the latter just recently started production. On the IMAX 3-D scene, Canadian Press reported that Imax Corporation took a writedown on two of its 3-D films, *The IMAX Nutcracker* and *The Hidden Dimension*, for which the company sees little prospect of further recovering costs. *Nutcracker* could have been (and it still might be) an annual holiday attraction for the company, but given the generally negative reviews and the well-publicized clashes over artistic differences between the director and producer, this film didn't seem to stand a chance. It is now securely positioned in the what-were-they-thinking? category. As for *The Hidden Dimension*, you know a film is in trouble when a name change is initiated shortly after its release. The film opened in New York under the title *Forty Million House Guests*, and it definitely didn't live up to expectations. Another IMAX 3-D film, *Mark Twain's America*, was critically admired but lacked wide commercial appeal. It should do well in the museum circuit. *T-Rex: Back to the Cretaceous* is off to a strong start, but a film producer friend recently dismissed it as "another little girl film," a reference to the fact that at least five of the company's 3-D films feature little girls or young girls in the storylines. It's no wonder that *Encounter in the 3rd Dimension* is like a breath of fresh air.

Imax seems to be on the right track with several promising future productions like *Galapagos, Cirque du Soleil* and *Siegfried & Roy—The Magic Box*. And brace yourself for the next LF 15/70 3-D sensation from Iwerks and nWave—*Alien Adventure* is scheduled for a fall release.

Israel in 180 Big Anaglyphs

(Continued from page 17)

The above faults are really a minor distraction compared to the overall impact of *Israel In Three Dimensions,* and shouldn't be a major factor in choosing or rejecting the book. Those who find color anaglyphs a logical contradiction or aesthetic abomination won't be interested in any case, while others may be fascinated by the sheer scale of the effort or by the subject matter. This is clearly a very unique and collectible publication with several large examples of the ultimate that can be achieved (with a combination of skill and luck) in the printing of color anaglyphs.

NOTE: using the darker anaglyphic glasses from distributor Cygnus Graphic will noticeably reduce ghosting compared the glasses included from the publisher.

Becoming a 3-D Mentor

(Continued from page 21)

a positive role model in every aspect, and be each kid's personal friend. Your impact can go far beyond teaching 3-D photography. Always stay positive.

- Sixth, seventh and eighth graders have energy you have not even dreamed about. They will get up and walk around while you talk. They may stand on a table or chair. A wrestling match may break out. They will pick up and try out everything you bring to the room. Be prepared for this and try to accommodate. If you come in the right frame of mind it will be one of the most entertaining experiences of your life.

So pick up the phone and call a local school. You will be amazed at how much you are welcome. You will be building the 3-D community of the future.

Becoming a 3-D Mentor

by Jim Van Eldik

I believe that almost all of us are somewhat puzzled and maybe even perplexed at the relatively small size of the 3-D photography community. How can something that is so much fun, so artistically creative, and so superior to conventional 2-D photography not have a really huge following?

In my opinion there are two underlying explanations. First, the general population has extremely limited exposure to our craft. Unlike '50s kids, much of the '90s generation has limited or even no knowledge of good old View-Master, and they are totally mystified by nineteenth century stereoscopic views. They are exposed to 3-D , but it is the Nintendo high-tech type where users are in a spectator mode, not in a participatory mode in which the individual is actually creating the 3-D.

The other problem is that we 3-D folks are a more or less closed society. Through *Stereo World,* the NSA does a tremendous job of keeping us informed of what's going on. But our reach into the general community is extremely limited. I believe that what each of us needs to do is go out and educate the community immediately around us. This can take many forms, but I feel one of the most effective ways to help our craft over the long term is to become a 3-D mentor.

The stereo shows a segment of the "3-D Wing" of the Henderson Middle School Photography Club in Jackson, Georgia. These are sixth, seventh and eighth graders who have joined the school photography club specifically to learn 3-D techniques. Most middle schools are very club oriented, the club system being a way to help the children develop positive interests and hobbies, and to develop social connections with other students of similar interests. Many of these children are in the process of selecting adult role models—a position club advisors often fill. Kids this age are interested in everything and it is the ideal time to introduce them to the concept of 3-D and 3-D photography.

At Henderson students attend the regular photography club meetings to learn the basics of good picture taking and also have special sessions specifically on 3-D techniques which I conduct. They are introduced to the various modes such as the modified Nimslo, the split image, the lenticular, and 3-D publications including *Stereo World.* Once students are clamoring to do their own 3-D photographs, I acquire a camera for them. This year each student received a single use lenticular camera made by 3-D Image Tech. Wolf Camera, the local distributor for Image Tech cameras, graciously agreed to provide club members with a 25% discount for both cameras and processing. As the lenticular photos are processed and returned the members gather together to critique each picture. The students are very proud of their successes and often share the photos with non club members around the school thus creating more interest. We currently have nearly 30 students in various stages of 3-D "development."

Once a student is introduced to 3-D photography via the single use camera, they are encouraged to purchase a reusable camera for their next project. Image Tech offers a reusable lenticular camera with built-in flash called the FX which is available for $35. (See *SW* Vol. 25 No. 4, page 27.) So far, nine students have progressed to this camera. Students now have pride of ownership and also have the capability to experiment with "Nimslo format" slides by covering the center lens of this 3-lens camera and converting to slide film.

If you begin working with young folks, which I sincerely hope you will, please keep these points in mind:

- Initially 3-D photography is mysterious to the children and their parents, so keep things simple and cheap at the start. However, the "hard core" kid overflowing with enthusiasm should proceed directly to an FX camera.
- Middle school kids are actively seeking adult mentors; this might be you. Be prepared to be

(Continued on previous page)

Sixth, seventh and eighth graders in the "3-D Wing" of the Henderson Middle School Photography Club in Jackson, Georgia ham it up for a 3-D group shot.

On the Stereo Imaging of Pixies, Fairies, & Other Ephemera

by Boris Starosta

In late 1997, I sought a way to blend my interest in the beauty of the figure with the fantasy/futurism of my computer illustration—and to do it in stereo! "Pixie" is the happy result of that quest (figure 1).

The idea for this image was actually inspired by the model. During one of our photo sessions, she mentioned that another artist had once wanted to photograph her as a pixie. This was intriguing, and I decided to do the same, but with the intent to create a proper, magical habitat for MY version of this pixie using purely digital tools. This would have been a relatively easy photo-collage assignment in the world of flat "2d" pictures. In stereo, the task would prove a knotty technical and compositional challenge.

It all seemed so easy at first. I would stereo-photograph the figure of the pixie using my vertical format twin Pentax K1000 setup (50mm f.l. lenses and a stereo base of about 75mm. Distance to subject: 15ft.). Separately, I would create a three dimensional environment for the pixie using the computer. Scan files of the figure would be imported into that digital world as discrete objects—as photo "panels" not unlike those stand-up cardboard cutouts of celebrities one sees at the movie theater. Finally, the scene would be stereo-rendered as an integrated whole, with the photo panels placed in the scene among the digital water, lilies, grasses, and other environmental elements. The resulting L+R files would be taken to a service bureau, where a film recorder would produce 2x2 slide pairs.

The Digital Scene 1

The three dimensional scene was created using modeling and ray-tracing software called Bryce. This program has been available on the Macintosh for about five years, and is now available to users of PCs/Windows and others. Bryce is used to build a digital representation of a scene—a model—using geometric "primitives" such as spheres, cubes, cylinders, cones, etc. These primitives can be stretched and rotated into any position, allowing the construction of complex forms. As the model was built, surface colors and textures were chosen for each object—also their reflectivity, transparency, indices of refraction. In this piece by piece way, I created the sky, clouds, hills in the distance, pussy-willows, flowers, grasses, water lilies, the rippled surface of the water, and even the pebbly bottom of the lake sloping away from the observer.

This can be tedious work, and it is tempting to call it quits after placing one or two plants in the water. That is when the critical (and totally non-technical) input of a spouse can be helpful: "It looks so barren. You need to put in more stuff!" So one is cajoled into creating ever more things in the scene.

What is Raytracing Software?

In it's earliest manifestations, computer art was simple line art. Increasing computing power led eventually to a process called ray-tracing, first utilized on super-computers in the early 1980s to create near photo-realistic images of scenes (3-D models) held entirely within the digital memory of the computer. The state of the art has now advanced to the point where entire feature films can be made using this process—you have to see "Toy Story" to believe it!

Now you can buy such software for your home computer. A raytraced image is called a rendering, and consists of an array of pixels of different values, just like the scan of a photograph. Each rendering is the sum of billions of operations, as the computer calculates the brightness and color of each of millions of pixels in the image. The total time needed to complete a rendering is a function of the final size of the image (i.e. the number of pixels), number of objects in the model, texture complexity, number of light sources, and other variables.

Most of my digital images are 2400 by 1800 pixels and take from five to twenty hours to render on a Powermac 8500/120 (and that's just for one image of two per stereo pair. For those unfamiliar with Macs, the 8500, though five years old now, is still faster than most Pentium PCs running this software). After the image file is rendered, it is taken to a service bureau on a floppy, where a slide is made using a film recorder.

General image composition is done in a manner very similar to photography. The software gives the artist control over the position, intensity, and color of a number of lights. Panels or flags can be used to control light and reflections. A virtual camera can be moved and pointed in any desired direction and an effective focal length chosen to set the field of view. Finally a stereo pair is generated by rendering the scene twice, from two separate camera locations.

In the case of the Pixie, the scene would also include the imported photo panel. Left and right views would be rendered with the corresponding left and right photo panels in place. In this way, the three dimensional image formed by these panels would not simply appear "pasted into" the rendering, but would interact with the surroundings, such as reflecting off the water, casing shadows, and so on (figure 2a & 2b).

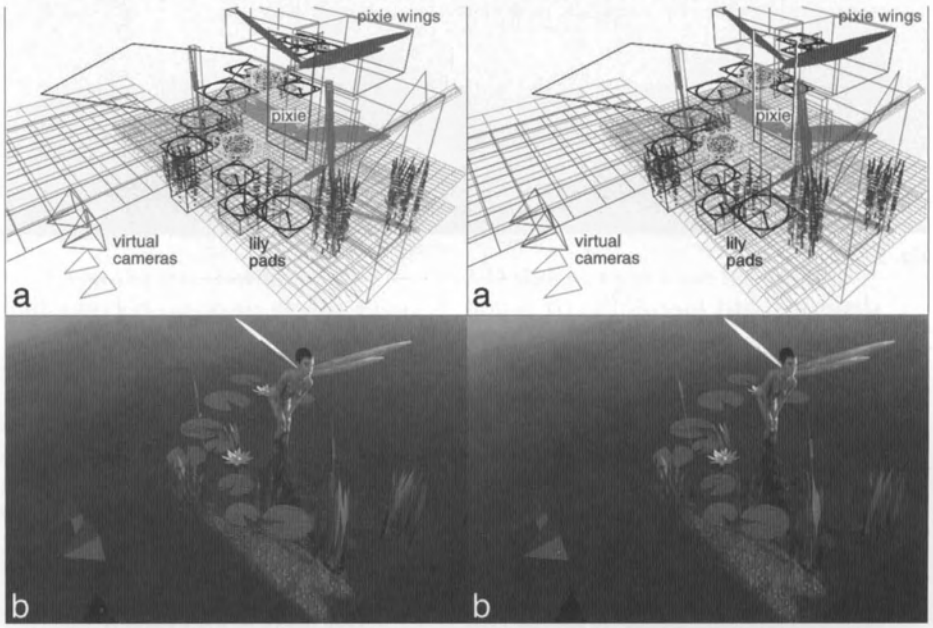
Photography

Like most popular raytracing software, Bryce has only primitive lighting tools; only point sources of light are available to illuminate one's digital constructions. This means harsh lighting with sharp shadows, and it was very important to match this lighting in the figure photography session. Knowing I would likely use only a single light source for the digital scene (i.e. the sun), I set up the photo studio with a single bare strobe for the main light, and a reflector to fill in the shadows.

The pose and lighting angle represented another tricky set of variables. I knew that I wanted the pixie to be standing in or sitting near a surface of water, so that her reflection there would enhance the illusion of reality. Also, the pose could only be lit from certain angles—otherwise the imported photo panel (with matched lighting in the scene) would cast strange shadows. Thus I selected a low backlighting sun angle for the composition.

Also, I decided to "shoot" from a low point of view, so that the computer generated reflection of the pixie panel in the water would not look too unnatural. Although the computer calculates reflections in the digital water with perfect precision, the reflection is still of a flat panel, not a real three dimensional object. This would have been more obvious with higher points of view.

Fig. 1.



Figs. 2A & 2B.

Digital Scene Creation 2

After the photography was done, the slides were scanned, and the digital scan files were prepared for import into the Bryce model. Each scan needed a "transparency mask" This would allow the scan to have transparency in those parts that did not show the figure. This masking was done with the manual painting tools in Adobe Photoshop software.

The imported photo panels represented the left and right eye views of the pixie. Together they would produce the three dimensional image of the figure in the scene. For this to work, the Bryce model had to perfectly match the taking geometry of the figure photo session: the virtual "cameras" used within Bryce had to

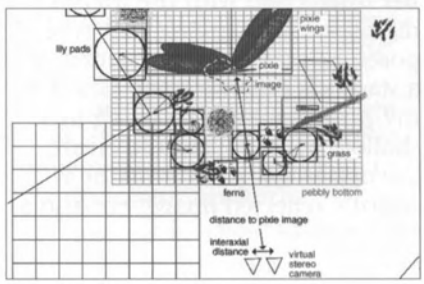


Fig. 3.

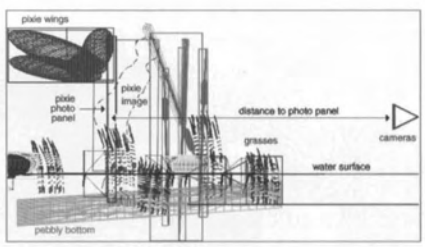


Fig. 4.

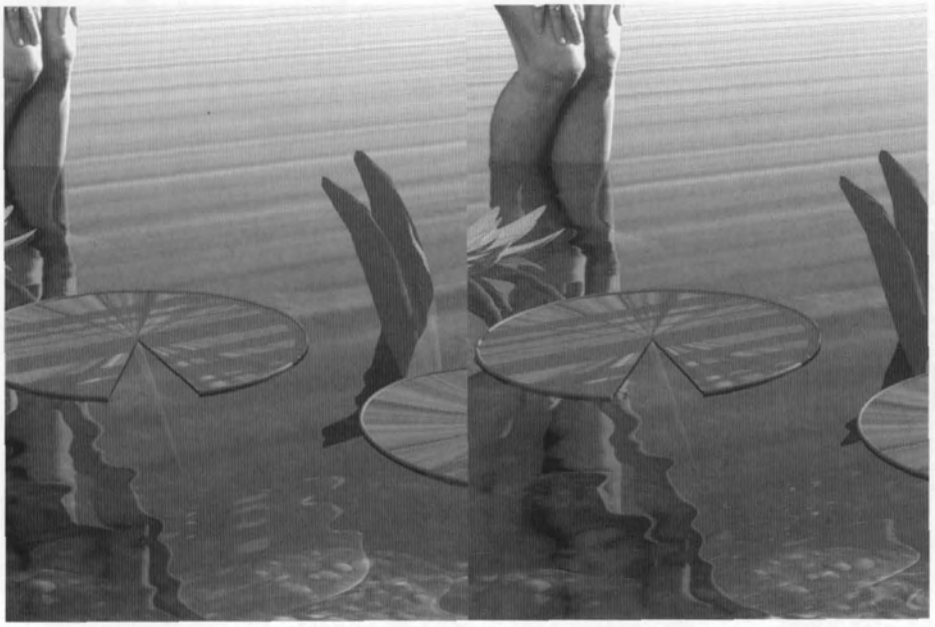


Fig. 5.

have the same effective focal length, and relative lens separation and distance from the photo panel, as were used in the studio. (figure 3)

Even with the help of notes taken during the photo session, this task of matching the taking geometry was more demanding than anticipated. It involved endless fiddling with the various parameters. The seamless incorporation of the pixie's image is enhanced by her interaction with the water's digital surface. Having shot several poses for possible use, I settled on a standing pose with the idea that my pixie would be standing in a shallow pool. This would create the opportunity not only for a realistic reflected image, but also a transmissive image of her feet below the water.

This image of the feet was beset by problems. I found it difficult to set the transparency and refractive index of the water so that the feet looked submerged, while keeping the pebbly ground beneath the water clearly visible. In the end, I was forced to abandon my effort to reconcile these two needs with simple adjustments to the water, and instead created two more photo panels showing only the feet. I colored them a darker blue using Photoshop, shrunk them vertically, and imported them separately to give the impression of submerged refraction that I wanted. (Alert readers will recognize that I had to produce and import new panels for the pixie above the water at this point, panels without feet!)

Another interesting problem was the creation and placement of the pixie's digital wings. From the software's point of view, her whole body was just a flat panel standing in the water. Her feet, shoulders, arms and head were all in one plane, with no part closer to the observer than any other. But in the finished slides those left and right photo panels would be viewed stereoscopically, making the pixie's torso appear to lean towards the viewer, her upper body visibly much closer than the actual panels in the Bryce model. (figure 4)

This caused a dilemma when it came time to attach wings to the pixie's shoulders. Unlike the flat pixie panels, the wings were constructed as actual spheroidal objects in the Bryce scene. This meant that for the wings to appear at a proper distance and attached between the pixie's shoulder blades, they would have to be placed in front of the photo panels—where the shoulders would seem to be when viewed in stereo. But at this location, the wings would obscure parts of the panels from the point of view of the virtual camera. The answer was to locate the wings behind the panels, but to manually shift their horizontal position between the left and right renderings. This forced a kind of "artificial" parallax to make the wings appear closer than they were, without blocking the image of the figure.

But the final effect was worth the trouble (Figure 5). The resulting image shows a multitude of depth levels involving the figure and the surrounding environment—a convincing integration. In one small area of the composition, one can see different layers of depth in the reflection of the pixie's wings, the bottom of the lake, the submerged feet, the rippled surface of the water, and rising above that, the figure of the pixie herself.

Finishing the Final Slides

I was surprised at the amount of tweaking still needed after the first slides were made at the service bureau. The resolution and image size of my computer monitor allowed careful proofing of highly magnified parts of the picture, but proofing the entire composition at once had been possible only at low resolution.

When I received the first slide pair from the service bureau, I found that the pixie appeared to have too much depth compared to the rest of the scene. In a subtle way, not apparent while proofing the images on my computer, she showed more parallax than was appropriate for her apparent distance. I fixed the problem by increasing the interaxial separation of the virtual cameras in the Bryce model. Another problem was the placement of the wings. On the first go-around, one of them appeared too close—apparently sprouting from the pixie's cheek! To fix this, I had to adjust the horizontal position of the offending wing in the right eye scene and re-render the view.

These and other problems took an additional week to fix. With the flawed slide as a guide, I would correct and adjust the Bryce model, re-render the faulty viewpoint(s) overnight (each rendering took about nine hours), resubmit the files to have more slides made, then proof these new slides.

Epilogue

The pixie has been making the rounds, traveling to exhibitions

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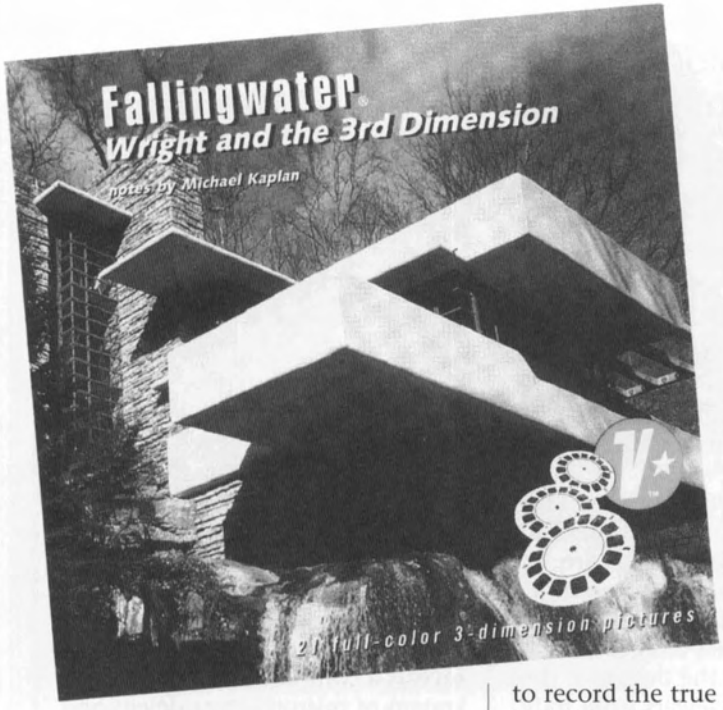


Viewing Fallingwater the "Wright" Way

review by John Dennis

The long-awaited View-Master reel set *Fallingwater—Wright and the 3rd Dimension was* recently released by View* (or Vstar) Productions following the very successful publication of their 1997 architectural set *Bruce Goff: 3 Houses* (*SW* Vol. 24 No. 5, page 13).

If 20th century architecture has one structure universally recognized by both the general public and students of the art, it would have to be Frank Lloyd Wright's 1937 house Fallingwater in Mill Run, Pennsylvania. Books, articles and a PBS television documentary on Wright and his work have attempted to reveal the visual and spatial reality of the structure's relationship with the environment and of its interior. None have met that goal to the extent achieved by Michael Kaplan's stereography in the three reels of *Fallingwater.*

In fact, Wright himself condemned as futile the use of any means *except* stereo photography to record the true nature of a building. His opinions on the subject are covered at some length in the set's notes, which include among other quotations, "The only photograph that can be made of architecture is three-dimensional....you can really get a photograph of a building that gives you the experience of being in that building....painting you can see, you can get it with your eye; music you can hear; but a building you must experience. It's in three dimensions..."

Among the fascinating details provided by the packet notes: By 1953, Realist stereography was being used at Wright's Arizona studio/center Taliesin West to document work in progress and social events. *Bwana Devil* Producer/Director Arch Oboler sent Wright 3-D slides of work on his Malibu home, which Wright had designed. Wright's S.C. Johnson Company building in Racine, Wisconsin, was displayed via individual Realist viewers in a 1952 Museum of Modern Art exhibit in New York.

NSA member Kaplan's stereography conveys the emotional impact of the building's richly textured but open interiors and of its cantilevered, horizontal exterior lines that blend so unexpectedly and dramatically well with the site. The three reels are divided into coverage of the building's Exterior, Interior, and Details. Every scene but the most distant exterior view could have been used to illustrate the architect's writings and lectures on the necessity of stereoscopy to truly document his work.

(Continued on page 35)

Fallingwater–Wright and the 3rd Dimension

Stereographs and notes by Michael Kaplan, View* Productions, 1998. Three-reel View-Master packet with text folder in plastic jewel case. $21.95 (plus $3 shipping) from View* Productions, PO Box 11835, Knoxville, TN 37939, (423) 531-2927, view@usit.net.
Also available from selected architectural bookshops, amazon.com, or Cygnus Graphic, phone/fax (602) 279-7658.

Scene 6, View reel 302-1, "West terrace" with 12th century Bodhisatva Buddha sculpture. Michael Kaplan concludes his packet notes with a reference to Fallingwater's "...paradoxical combination of complexity, drama, intimacy and serenity." Varying elements of that combination can be found in most of the 21 scenes in the set.*

Inside the VM Viewer/Binoculars

by John Dennis

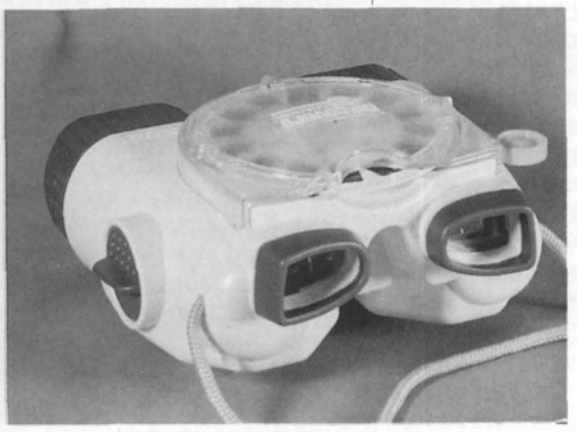
It's no secret that the View-Master Discovery™ Channel 3D viewer/binoculars introduced last year haven't exactly been a hit with View-Master enthusiasts. But easily lost amid comments criticizing its diffuser and optics is an appreciation of the fact that View-Master actually produced a reflex viewer - albeit one combined with binoculars—after resisting the concept for at least 40 years.

While the exact need for such a combination may seem elusive, there is certainly some marketing logic behind the concept's "Explore Your World" slogan. Reels sold for and with the viewer are filled with animal and natural history images typical of Discovery Channel programming, while the binocular function can enhance a child's live nature study.

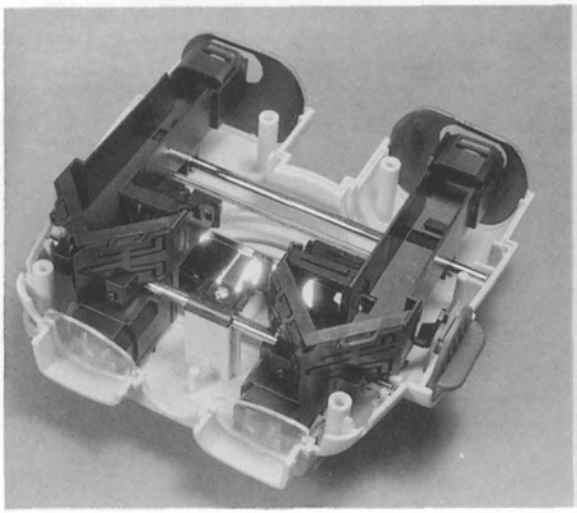
Both reflex viewing of View-Master reels and the combination of a stereoscope with binoculars are concepts that appeared some time ago in foreign designs. But combining a reflex View-Master with binoculars makes the design of the 1950s reflex reel viewers from Italy and Australia—or that of the more recent stereo slide viewer/binoculars from Japan—seem blissfully simple.

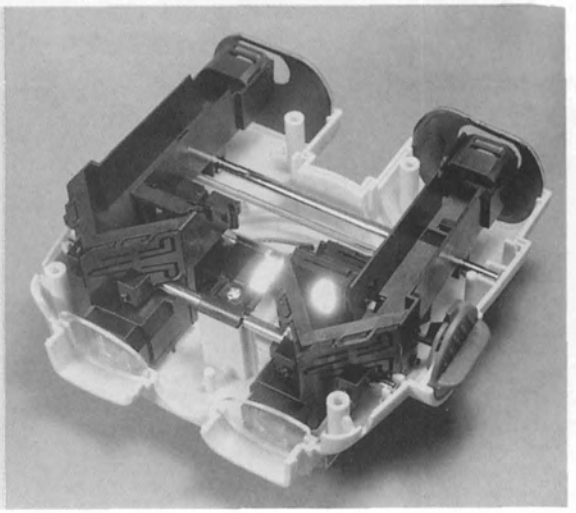
It's doubtful that many of those most dismissive of the Discovery viewer have opened it up to see its impressive solution to what was a real engineering challenge. Creating a smooth and rugged mechanism to feed a View-Master stereoscope and 4X binoculars through the same eyepieces involved mechanical design skills seldom required in modern toys, where electronics and software design now dominate. Inside, the viewer reveals a complex and precision system of mirrors, cams, levers and springs that's surprising in the product of *any* toy company—even one with the reputation for quality of Fisher-Price.

A flick of the mode switch knob on the left side positions a long front-surface mirror for either



View-Master Discovery™ Channel 3D viewer/binoculars. The reel is easily visible through the nearly clear diffuser/map. (An untextured spot allows the scene title to be read.) The big knob on the left flips a mirror to see up into the viewer or down through the binocular optics.





Inside (with the viewer upside down), the long mirror that extends past both eyepieces is in position for looking through the binoculars, which involves a total of seven front-surface mirrors as well as the movable mirror/lens assemblies.

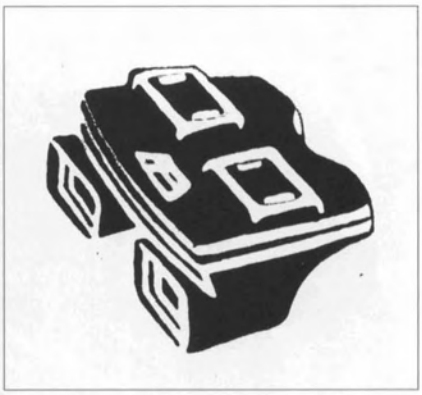
A View-Master Discovery Channel packet and plastic reel storage case. An image of the main subject of the packet is molded into the case cover and printed on the back of each reel. The cases will actually hold up to six reels, or even reels in standard paper reel envelopes. Scene titles on the natural history reels include silhouettes of the subject animal, and each scene includes inset habitat maps, size charts, etc.

reflex reel viewing or binocular use. In binocular mode, a lens dial on the bottom moves both the eyepieces and the binocular lenses apart or together along the long mirror, providing the kind of adjustment available in more expensive binoculars. In viewer mode, the eyepieces remain at their widest separation and the lens dial is disengaged.

Reel insertion and advance are equally smooth mechanically, with the advance happening on the

The right chip of "El Castillo Pyramid Chichen-Itza, Mexico" by Larry Moor from the NSA 20th Anniversary Reel as seen in the Discovery Viewer. Shooting into the viewer's main mirror with a light source about five feet above the viewer reveals the mottled effect from the diffuser's textured but non-frosted plastic. Indirect or already diffused lighting reduces the effect.

return of the lever. There is no "slop" at all once a reel is slipped in, and only by allowing the lever to snap back all the way can images be misaligned. In binocular mode, the optics seem reasonably good, with anything over about 12 feet away appearing clearly sharper than through most binoculars off a toy shelf. In viewer mode, some distortion is evident at the edges but it's the speckled effect from light sources visible through the thin diffuser incorporated into the domed top of the viewer that's most obvious. Using the viewer under truly diffuse lighting largely eliminates the problem, but that's not always easy to arrange.



The SIGHT-SEER reflex viewer from Australia, as illustrated on a SIGHT-SEER reel envelope, looks bulkier than the Stereomax but no sample has turned up for closer examination.

Lightly etched into the clear plastic of the viewer top is a world map, with South America and Africa positioned directly above the scene windows. In some product photos, the map was enhanced to appear nearly white to show up as clearly as the Discovery Channel logo in the center, but in the actual product the plastic over the windows provides only minimal, coarse-textured diffusion. A different treatment of the inside surface of the plastic, or a couple thousandths of an inch of frosted mylar would have made all the difference in what is otherwise an ingenious device. Including better eyepiece lenses as well would have made it a View-Master classic for general use by all ages rather than just an interesting addition to viewer collections.

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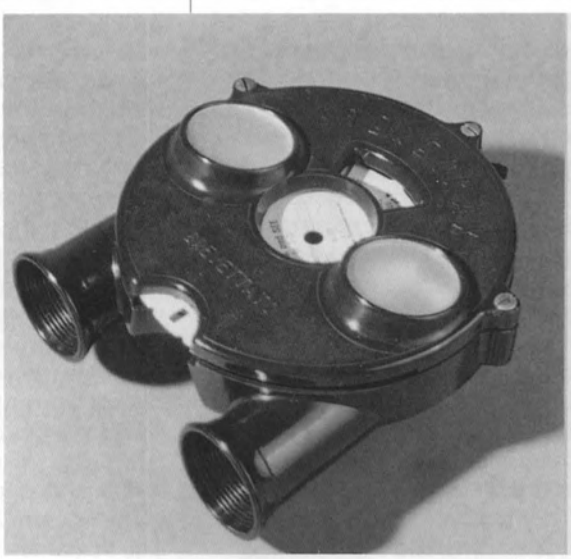

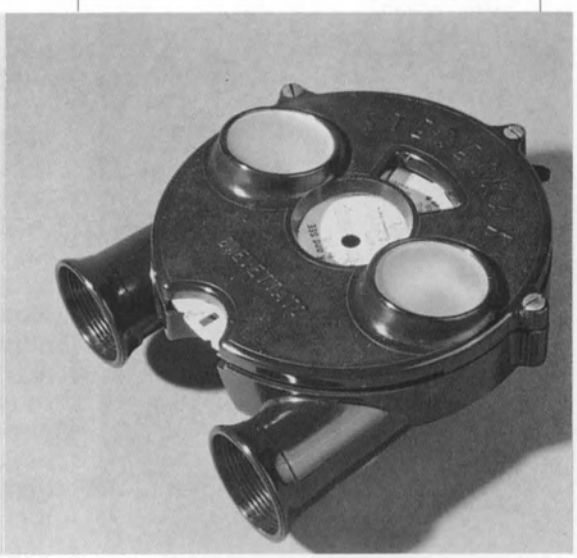

The STEREOMAX reflex viewer from the Italian company Brevettato (c. 1950s?) was compact and well designed, with a small advance lever at the back and openings through which not only the scene title could be read, but the center information on the reel as well! The small blue viewer was in the View-Master Plant collection, where it was probably studied for possible patent violations as well as for its interesting design concept.

High-Tech 3-D Razzle Dazzle

by Don Marren

It was inevitable that simulator rides would go all out and push the thrill button to the max with the addition of 3-D technology. Trust us, you won't look at simulator rides the same way after you experience the eye-popping thrills of *Dino Island II 3-D: Escape from Dino Island* from Iwerks™ Entertainment and *Race for Atlantis* from Imax® Corporation. Both film rides opened last year to overwhelming critical acclaim from the media and became instant hits with a public who seems to demand more and more shocks and surprises with newer attractions every year.

Poster art for Dino Island II 3D: Escape From Dino Island.

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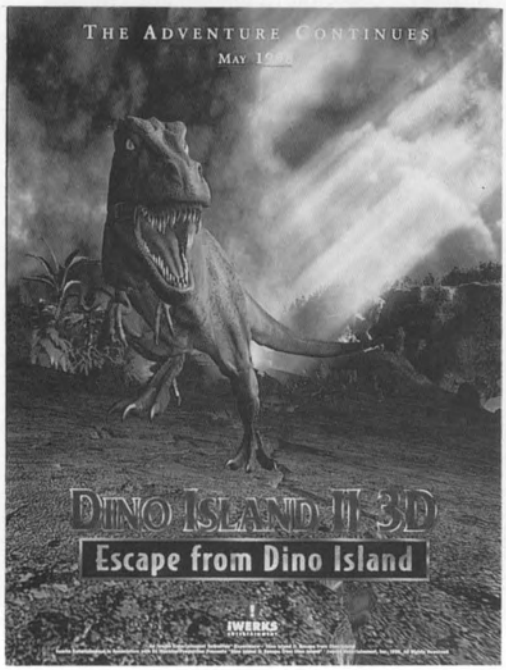


The Iwerks TurboRide3D!® *Dino Island II 3-D* is a sequel to the most successful Iwerks TurboRide of all time, *Dino Island*. The world premiere of the sequel was held last year at La Ronde in Montreal, the first theme park in North America to install the initial Iwerks TurboRide Theater system. It has subsequently opened at other theme parks around the world. Combining photo-realistic 3-D computer generated images (CGI) with digital surround sound and simulated motion to punch up the action, *Dino Island II 3-D* creates a lifelike 3-D experience that is nothing short of astonishing.

Pre-shows for major film and ride attractions at theme parks are always great fun, as they set the mood for the often catastrophic events that follow. (A favorite of mine is the pre-show for *Terminator 2 3-D* because it incorporates live actors to make the presentation more personal.) In *Dino Island II 3-D*, the science fiction movie entertaining us on a monitor is suddenly interrupted by an Emergency Special Report. A natural disaster is unfolding in the South Pacific. A volcanic eruption threatens to obliterate Dino Island, a refuge for the last remaining dinosaurs on earth. The animals must be evacuated. An international coalition of aid from many countries is formed to rescue the rare creatures from certain destruction. The report has a frenetic feeling to it as news coverage cuts back and forth to various locations, including the U.N. and the Pentagon. From the USS Lexington, headquarters for the rescue mission, we hear roars from the captive creatures in the ship's hold as we listen to an Earth Science Team's strategy session before they board all-terrain and submersible vehicles which will be lifted by helicopter to the besieged island. The team's primary aim: to rescue the island's most precious and ferocious specimen—the male T-Rex, who seems determined to elude capture and remain on the island. Buckle up and hang on to your polaroid glasses. We're all going along to cover the mission.

The flight to Dino Island is nothing short of breathtaking. As clouds part, we see the island's active volcano in the distance and come face to face—literally—with flying Pteranodons fleeing their habitat. If there's such a thing as beauty in a disastrous setting, this is it. The CG images are a stunning achievement.

Suddenly, our vehicle is hit and we plunge into the ocean, made even more lifelike with the appropriate simulated motions. The adventure that follows is, to borrow that old cliché, action packed. We face countless obstacles, including a snake-like dinosaur who shoots its barracuda-styled head towards our windshield, an Apatosaurus who suddenly plants his leg in front of us, a Stegosaurus who smashes our windshield as he whips his spiked tail at our vehicle, and let's not forget the horde of giant dragonflies who attack us. The visual and motion jolts seem

to intensify as we dodge collapsing trees, landslides and molten lava. Just when we're about ready for some relief (help!), we abruptly meet the star of the film, and boy does he have an attitude. At this point, Iwerks shows no mercy and throws the whole enchilada at us as T-Rex clamps his giant jaws onto our open windshield (a 3-D trick to remember). Our vehicle gets tangled up in a net with him, and then suddenly we all careen backwards over a cliff into the ocean and get sucked into the water by a deadly whirlpool. (Author! Author!) Will T-Rex get saved? Will there be a *Dino Island III 3-D?* What do you think?

Hats off to Paris-based Ex Machina, the CG wizards who created the realistic images. The company animated the original *Dino Island* and delivered to Iwerks the award-winning simulation ride *Mad Racers*. Already, *Dino Island II 3-D* has won a major award. Last December, it was awarded top honors in simulation at the Fifth Annual London Effects Animation Festival. This prestigious European competition brings together the highest quality artistic and technical talent in digital moving images in the industry. The win for Iwerks is an astounding achievement, given that there were more than 350 entries.

Mix Ryan, Iwerks VP of Film Production who created the story along with Ex Machina director Jerzy Kular, credits the CG company for delivering a perfect payoff experience in the ride itself. "They really nailed the 3-D aspect—it's just right in your face. The CG is the best stuff Ex Machina has ever done. It's really gorgeous, and they've accomplished a lot of new things."

With the exception of the dragonflies, all of the creatures in the film where modeled from sculptures. "We used the same basic design for the T-Rex, but we entirely remodeled him in order to be able to animate him in a more sophisticated manner," reports Kular. Ex Machina used Silicon Graphics computers and the latest software to create *Dino Island II 3-D*, including Softimage, Alias/Wavefront, Arete, Matador and Photoshop. In addition, they employed special in-house software to move flocks of flying dinosaurs and schools of fish in believable ways. The company's proprietary software was also used to create complex textures and to combine all of the various digital elements seamlessly together.

In a scene from Dino Island II 3D, the clouds part to reveal a sky filled with Pterandons, fleeing their doomed habitat in the distance.
© Iwerks Entertainment and Ex Machina.

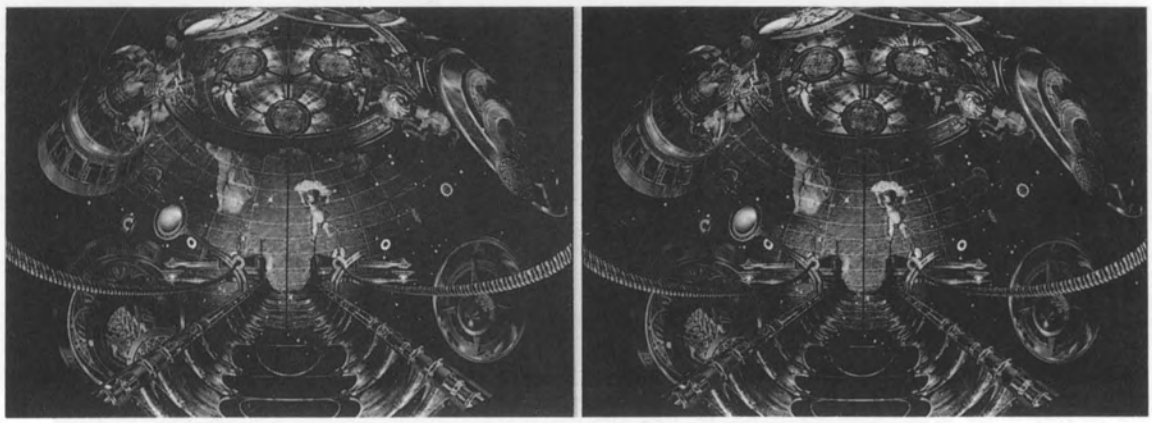
Audiences will certainly be amazed by the realistic creatures in the film, but Kular claims the CG subtleties were taxing to achieve. He points out that environmental effects like smoke, blowing sand and volcanic explosions are much more difficult to achieve in 3-D than in the 2-D original. "In a 2-D ride, we can use many tools to help us attain 'believability.' In the first ride, for example, the smoke and explosions were filmed elements which were composited onto the CG. In *Dino Island II 3-D*, all the smoke and explosion effects *had* to be created in 3-D. Combining the concept of a ride and 3-D with a certain dose of 'realism' was definitely a major challenge."

Complementing the stunning 3-D visual images is the motion base programming that fools the brain into thinking you are moving more than you actually are. (This is an art in itself.) During the 'flight' to Dino Island at the beginning of the film, the audience experiences a floating motion, made even more realistic with a slight vibration caused by the helicopter blades. This is the ride's first feeling of motion. Initially, it's an unsettling experience, but the audience quickly adjusts to the sensation. This is tame stuff when one considers what follows. Most members of the audience will never forget the jolts, shakes and bumps created for the falling backwards sequence, the various attacks and the deadly whirlpool. Iwerks has a big hit on its hands with *Dino Island II 3-D*. Don't miss it! (P.S. Iwerks has a new TurborRide3D! out this summer called *Journey Through the Center of the Earth*.)

First Giant-screen IMAX 3-D Ride

Drop everything and rush to Las Vegas to see the first large-scale attraction to utilize IMAX 3-D technology in a simulator-based environment. The IMAX® 3-D Ridefilm™ *Race for Atlantis* is a joint venture between Caesars World and Imax Corporation.

Hailed as the most ambitious project ever undertaken by Imax Corporation, *Race for Atlantis* was created by the team that produced the benchmark theme park attraction *Back to the Future—The Ride* at Universal Studios. Take the Universal ride, put it in 3-D, set it in another time period and you pret-



An IMAX 3-D frame pair (slightly enlarged) showing the launcher scene from Race For Atlantis.
©1997 Forum Ride Associates

ty well end up with *Race for Atlantis*, now arguably the best 3-D ride in the world. The key to the mind-blowing experience in film rides like *Back to the Future—The Ride* and *Atlantis* is the ride chamber which houses a huge IMAX Dome. For *Atlantis*, the Dome measures 82 feet in diameter, making it the world's largest IMAX Dome ever built for an attraction. With such a wide screen, the audience is totally immersed in a very strange world of spectacular 3-D images.

The attraction features CGI by Rhythm & Hues, the production studio specializing in visual effects for feature films, interactive games and television commercials. Winner of a 1995 Academy Award for Best Visual Effects for the hit film *Babe*, the company's other credits include *The Nutty Professor, Waterworld* and *Batman and Robin*, as well as *EFX* and *STAR TREK: The Experience*, both in Las Vegas.

Race for Atlantis is located in a magnificent Greco-Roman environment in The Forum Shops area at Caesar's Palace, which we are told is one of the world's most popular shopping and entertainment destinations, hosting more than 20 million guests annually. To prepare you for the ride ahead, don't miss the fire and water animatronic spectacular called *Atlantis* in the terminal rotunda. (This is a separate show and it is not part of the *Race for Atlantis* ride.) The eight-minute show explains the story of the mythical sunken continent, and we see it rise and fall as characters Atlas, Gadrius and Alia struggle for its rule.

Inside *Race for Atlantis*, visitors step into an 'Atlantean' chamber and are immediately transported into a fantasy world where 80-foot ceilings dwarf a gargantuan 30-foot tall statue of Neptune battling a sea dragon and walkways, suspended over a 6,000-square foot pool of sound and visual effects, lead the way to the fabled city.

The storyline for the ride is intriguing. According to tradition, the winner of a chariot race between the gods, held every 1,000 years, becomes the ruler of Atlantis for the next millennium. Humans (that's us) are chosen by the gods to race their chariots against a field of fierce competitors, including Neptune, the current reigning monarch, and Ghastlius, champion of evil, who will stop at nothing—including destroying the kingdom—to ensure his victory. Here we go again! Buckle up and plunk on your IMAX E3D electronic headset with its IMAX Personal Sound Environment(PSE) system, there's no turning back. Who would have thought that a high-speed chariot race could be so much fun, so dangerous—and soooo bumpy? There is nothing to compare with being enveloped in a fantastic world of 3-D imagery on an IMAX Dome screen. (We suspect that this attraction is actually a presentation in IMAX SOLIDO. Remember, those electronic headsets with the liquid crystal shutters were specifically created for an IMAX Dome experience, as standard polarized glasses wouldn't work for such a curved screen presentation.) *TIME* magazine accurately assessed this breakthrough ride: "Even the gods would be impressed."

We certainly appreciated the Imax technology fact sheet that outlines some of the meticulous attention to the smallest digital details in every scene in the film. For instance, in the forest segment, more than 100,000 polygons were needed for each of the 36 trees, requiring animators to create more than three million polygons solely for the scene. Each of the more than 5,000 film frames used in the film required an average of 60 hours to render, and one frame from a layer of Ghastlius' hair took more than 18 hours to finish. The film required 1,717 gigabytes of disc space (the equivalent of 1.7 million high-density floppy discs) to complete, with the climatic final scene requiring more than 720 gigabytes of disc space. The ride may be only six minutes long, but it took over 10,000 feet of film shot over 2,500 hours to complete the production.

And then there's the fog which seems to come from every direction in the ride chamber. The attraction houses the world's largest, closed indoor water-based fog system that operates on a water recovery and recycling system to reduce the water consumption, creating a high-quality surrounding effect.

Sound? This ride is not for the squeamish. The score and sound effects are delivered by the state-of-the-art IMAX PSE system and an eight-channel digital audio system using 14,000 watts of power, with more than 3,000 watts dedicated to driving the sub-bass loudspeakers engineered into the motion bases. Seven custom loudspeaker assemblies, each comprised of 50 individual speaker elements, are placed throughout the ride chamber to ensure superior sound from any seating location.

For the record, the ride consists of four 27-passenger chariots and six degree-of-freedom motion sim-

ulator bases, and accommodates over 1,000 riders each hour.

One thing Imax doesn't reveal is the cost of this ride. *Variety*, the show biz trade paper, estimates the final figure as being in the neighborhood of $35 million-plus. *Race for Atlantis* was one of the last film rides produced by Imax Corporation, as no more are scheduled at this time. We don't know where that leaves IMAX 4D F/X, the company's latest technological wonder which is basically not a ride. IMAX 4D F/X is part of the company's IMAX Attractions division, and it has been in the development stages for sometime. It combines IMAX 3-D film with custom in-the-atre special effects, bringing this presentation to a whole new level of entertainment. (We're keeping a close eye on this technology, and we will inform *SW* readers of developments.)

IMAX Attractions include IMAX Ridefilm Simulator (18 or 21 seat motion simulators with its patented orthogonal motion base and 180-degree curved screen), IMAX Simulator Ride (IMAX 3-D Dome technology like *Race for Atlantis*) and Mini IMAX Simulator Ride (a smaller scale version of the IMAX Simulator Ride using 35mm projection in a dome environment rather than a 15/70 projection system).

Pixies and Fairies

(Continued from page 24)

the world over. Most recently, she won "Best of Show" at the Hollywood Exhibition. It has been suggested in various stereo-photographic societies that digitally produced images should be judged separately from those produced by more traditional means, the justification for some being that, compared to the labor and creativity that goes into using a real camera, it seems easier to produce award winning images by rearranging electrons at the push of a button. I hope that this article will at least partially dispel that notion. While there may be other good reasons to judge digital work in its own class, relative ease of production should certainly not be one of them!

The Author

Boris Starosta thanks Bruce Springsteen for invaluable help in writing this article. Boris is an artist living with his wife Janet and son Seven in Charlottesville, VA. They expect a second child in May, 1999. He has been active in stereo photography since 1997. More information about Boris' 3D work can be found at his website: www.starosta.com/3dshowcase or email him at boris@starosta.com or write to P.O.Box 772, Charlottesville, VA 22902. For a catalog, send a 33cent SASE.

View-Master

(Continued from page 27)

View-Master Discovery™ Channel 3D viewer/binoculars are available in gift sets that include various three-reel packets in dedicated plastic storage cases at some Target stores or through e-toys: www.etoys.com/html/et/et_fis0214_001.shtml or on the 3-D From Dalia site: www.3dstereo.com/discovery_vm.html The price of the gift sets is generally between $15 and $16. Separate three-reel packets in the Discovery Channel series are also available (packed in the plastic storage case) at a wider range of retail outlets.

Next Time....

Our next issue will include a report on the new View-Master "Virtual Viewer", introduced by Fisher-Price in conjunction with View-Master's 60th anniversary and featuring a large curved diffuser and optics that provide 50% larger images. This new viewer will be just part of View-Master's special presence at the 1999 NSA convention in Green Bay, July 8-12.

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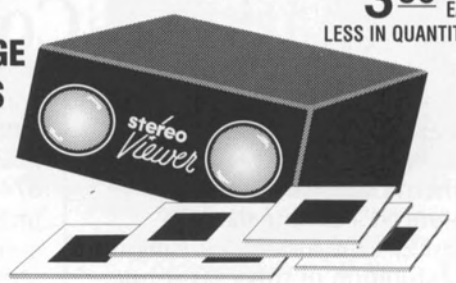

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NEWVIEWS

Current Information on Stereo Today

David Starkman & John Dennis

No Diffuser = Good Diffuser

Besides varying quality of lenses, one of the worst things about folding paper or cardboard stereo slide viewers has always been the diffusers. Even those with relatively little texture visible in the diffuser (usually only about a millimeter or so from the film), hot spots from light sources have often been annoying. Even the best diffusers, that close to the film, collect dust and hairs that are magnified by the optics.

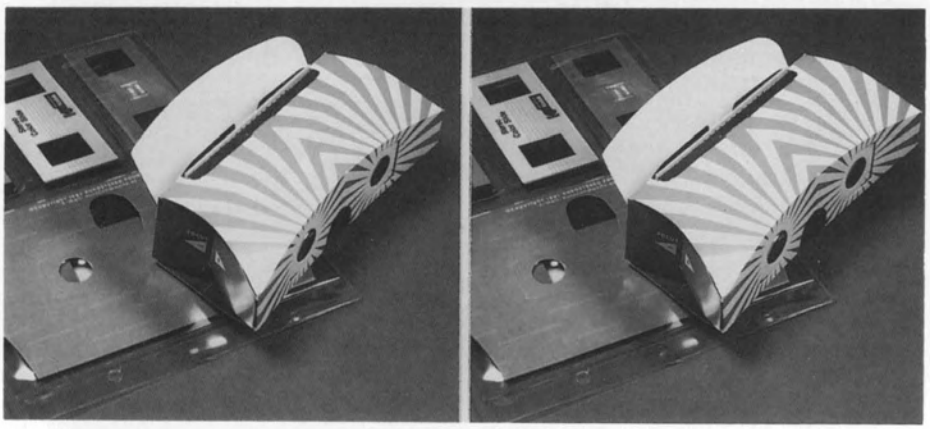
Now the EuroStereo Foundation of Barcelona, Spain, has eliminated the problem by simply not using a diffuser on its new EuroStereo folding 3-D slide viewers. Instead, a white reflector pops out from the bottom front of the viewer when it is unfolded for use. This slightly curved piece of cardboard collects ambient light from above the viewer and reflects it, fairly evenly, through the slides.

The viewer's plastic optics are as good as any to be found in "squeeze-to-focus" viewers of this type, and provide sharp coverage of images in standard 41 x 101mm mounts—from Nimslo format to European or even full-frame images in RBT mounts. A second version of the EuroStereo viewer holds pairs of standard 2 x 2 slide mounts for viewing full-frame images in either a horizontal or vertical orientation.

As with many folding viewers, it can take a little effort to slip slides into the holder and past the lower sections of the paper frames, especially when the viewer is new. In the samples supplied to *Stereo World,* gray smudges were visible on the reflector where the side braces folded against it during shipment. A touch of white correction fluid quickly fixed the problem.

Both versions of the viewer come packed in heavy, clear plastic folders that also hold three additional slides. This would allow four stereo images to be mailed with the viewer for promotional purposes, or provide an always-ready stereo photography sampler to be kept in a pocket for innocent bystanders who inquire about your strange looking camera.

EuroStereo viewers are $2.75 each (with discounts for larger quantities) plus shipping from Cygnus Graphic. For complete ordering information or a catalog, contact them at PO Box 32461, Phoenix, AZ 85064-2461, phone/fax (602) 279-7658.



The EuroStereo viewer makes it possible to keep a sample stereo slide with you at all times without worrying about the effect of a diffuser on your images. For more about the EuroStereo Foundation, see SW Vol. 24 No. 2, page 18.

1999 3D Movie/Video International Competition

The third annual 3D Movie/Video International Competition, sponsored by the Stereo Club of Southern California, has announced a closing date of August 2, 1999 for entries. Judging and exhibition of this Class I International PSA Exhibition will be on August 7. For entry information contact the SCSC 3D Movie/Video Division, 2601 Longley Way, Arcadia, CA 91006, (626) 821-8357 or 574-3812 fax. Website: http://home.earthlink.net/~campfire e-mail, John Hart: MOVIES3D@aol.com or Lawrence Kaufman: kaufman3d@earthlink.net

Dinosaur-Size 3-D Book

The world's largest 3-D book (almost two feet tall) is titled *3-D Dinosaur* and includes dinosaur-shaped anaglyphic glasses. It's available for $12.99 plus $4 shipping through Books Are Fun Ltd. Book Fairs by calling (800) 730-7076.

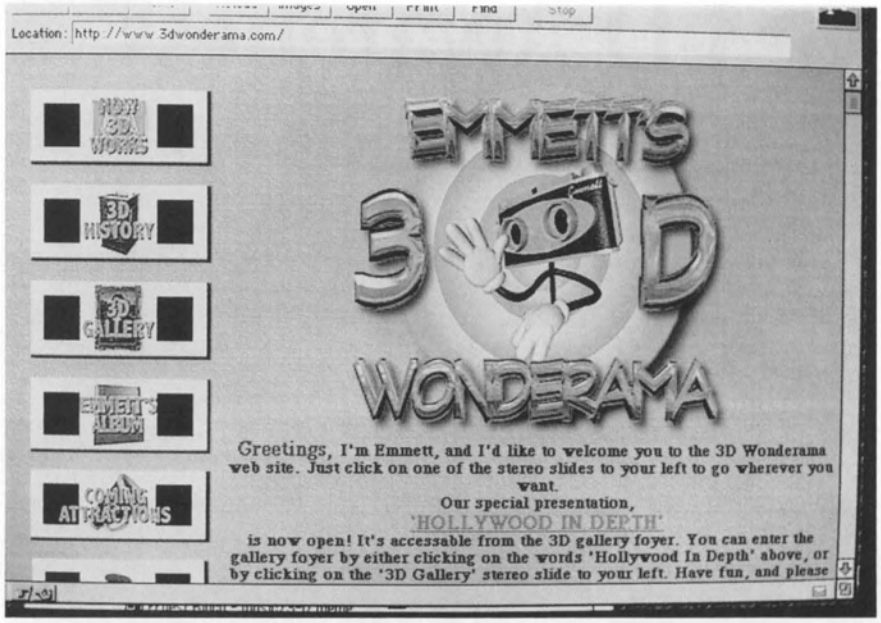
3D Wonderama

The proliferation of 3-D web sites makes it hard to keep up with what's new and/or worth checking out on the internet, but one of the more ambitious and encouraging new offerings is called "Emmett's 3D Wonderama": www.3dwonderama.com

Emmett, it turns out, is none other than NSA member Dan Gilvezan, who provided several dramatic stereos and the text for "3D Between the Aftershocks, Documenting the L.A. Earthquake of '94" in the color, 20th anniversary *SW* issue, Vol. 21 No. 1.

Far from just sticking a bunch of stereographs up, as on so many web sites, 3D Wonderama provides informative pages on how 3-D works and on the history of stereoscopic imaging. Three different image galleries include examples of great stereography by Dan and others, with one devoted to a special presentation called "Hollywood in Depth".

Dan Gilvezan is a professional actor who has appeared in such familiar TV shows as *Murphy Brown, Third Rock From the Sun, Step by Step, Sisters,* and *Diagnosis Murder* as well as a number of commercials. His discovery of a Nishika camera in a novelty store rekindled a passion for 3-D inspired earlier by 3-D comics, leading him to the Stereo Club of Southern California and to the creation of stereos that would earn honors in many international salons and competitions.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HOW 3-D WORKS
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3D GALLERY
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EMMETT'S 3D WONDERAMA
Greetings, I'm Emmett, and I'd like to welcome you to the 3D Wonderama web site. Just click on one of the stereo slides to your left to go wherever you want.
Our special presentation,
'HOLLYWOOD IN DEPTH'
is now open! It's accessable from the 3D gallery foyer. You can enter the gallery foyer by either clicking on the words 'Hollywood In Depth' above, or by clicking on the '3D Gallery' stereo slide to your left. Have fun, and please

One of the other most informative and useful 3-D web sites is also the work of somebody named Dan. "3-D by Dan Shelley" (www.dddesign.com/3dbydan) has long featured a wealth of information and images, and now also provides the site for the 1999 NSA Convention: www.dddesign.com/3dbydan/nsa99

3-D Movie Stamp in 2½-D

The 33¢ stamp "Movies Go 3-D" was voted in as one of the commemorative stamps for the 1950s set in the USPS "Celebrate The Century" series, and is currently available. In one version or another, the image of an audience wearing 3-D glasses is a permanent icon of 1950s popular culture, enshrined by both repetition and commercial manipulation.

A stamp actually commemorating 3-D cinema would have used an image from some well-known film, but the purpose here was apparently to invoke a '50s atmosphere with more nostalgia than historical content. The stamp designer did do more than just repeat the familiar image. In an attempt to recognize the 3-D nature of the topic, the photo is presented as an anaglyph—probably produced with a computer program that shifts an entire flat image behind the window, and, in this case, "twists" it so the left side appears further back than the right side.

Despite some vertical register problems with the red and blue images, the effect works reasonably well when viewed through anaglyphic glasses (red right). Call 1-800-863-8038 for a free 3-D stamp album and glasses. For collectors, this adds one more to the few anaglyphic 3-D stamps ever produced, and is the first to commemorate a 3-D topic, even if the original image is flat.

Text on back:"Responding to the growing popularity of TV, film studios began producing 3-D movies. Wearing glasses with gray Polaroid lenses, viewers were startled by images that leapt off the screen"

Expanding the Scope of 3-D Awareness

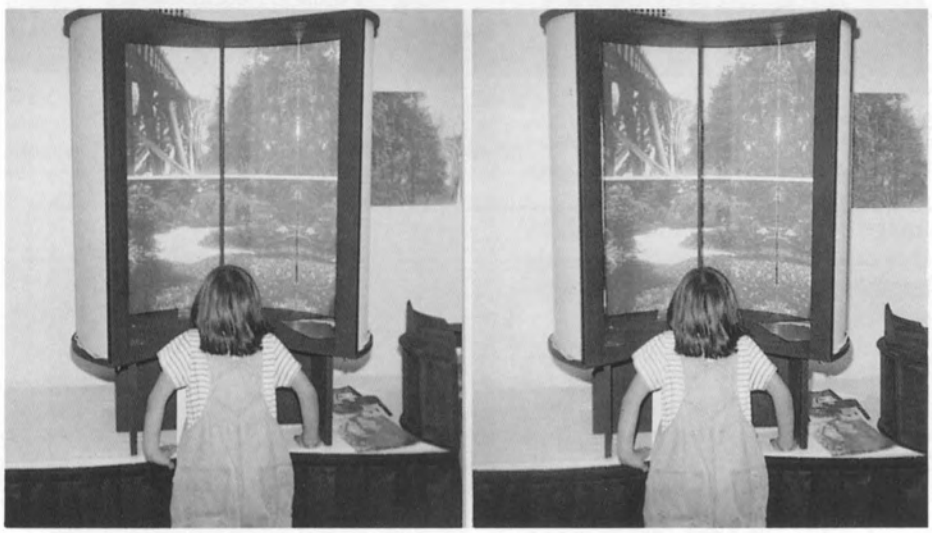
The second annual 3-D SCOPE event was presented April 10 and 11 at the Oregon Museum of Science and Industry in Portland by the Cascade Stereoscopic Club. 3-D Scope presented stereoscopic exhibits, slide shows, literature, cameras, viewers, and hands-on experiences with a variety of stereoscopes and video and computer stereo imaging systems including a digital 3-D portrait studio.

Three large display cases and information tables covered with viewers lined one of the main halls of the popular science museum, exposing visitors to the history of stereography, the past and present of View-Master, and the range of currently available 3-D cameras. Like last year, recent books in or about 3-D were on display, but in a much larger wall display case where several books could be shown open to interesting pages. Glasses taped to the inside of the glass at varying heights made it possible to view anaglyphic books in 3-D, while books incorporating lensed viewers were positioned with their lenses in contact with the glass for viewing stereo pairs.

Nearly 600 people attended various stereo slide shows over the two days, seeing the work of presenters Phyllis Maslin, Neil Steller, Rich Dubnow, Al Stenson, Ron Panfillio, and Ron Kriesel as well as a collective show of stereos by CSC members. One of the most popular attractions was Greg Marshall's digital 3-D portrait studio, where museum visitors received computer prints of themselves in both anaglyphic and stereo pair formats. Special 3-D Scope folding viewers were sold to view the latter as well as a selection of color print pairs by CSC members. In the same busy room were kids poking themselves in the eye via a live 3-D video system, people enjoying video tape sequences from 3-D movies and stereo slides on sharp, flicker-free computer screens as well as other specialized viewers.

The Cascade Stereoscopic Club receives free monthly meeting space at OMSI in exchange for agreeing to present this annual educational show—an ideal arrangement for an energetic club that probably would have jumped at the opportunity to present such a show in any case! For more information, contact Cascade Stereoscopic Club, 2244 NW Quimby St., Portland, OR 97210 or see: www.teleport.com/~jweigel/3D.html

That "Oh Wow!" instant. Kids and adults alike were enthralled by Richard Markley's stereo slides in this lighted viewer on the 3-D Scope Information table. They provided an ideal introduction to just what the event was about, and hearing visitors' delighted and amazed reactions made it a joy to volunteer at the table.



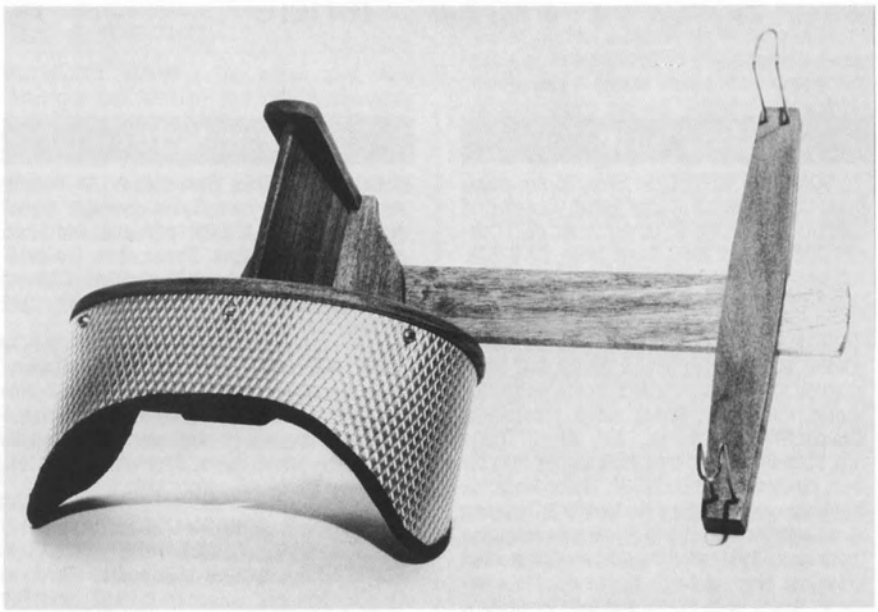
Probably the world's only carnivorous stereoscope, this wrap-around Wheatstone viewer devoured the heads and attention of nearly every 3-D Scope visitor who entered the computer and video room, where it waited near the door. The "Reflectron" viewer provides nearly total immersion in the curved image pair when your nose touches the edge of the mirrors. It was created by CSC member Dave Allen, who also arranged several video station exhibits.

*This column **depends** on readers for information. (We don't know everything!) Please send information or questions to David Starkman, NewViews Editor, P.O. Box 2368, Culver City, CA 90231.*

Wrayscope Tries A New Angle

The new Wrayscope Model 2 stereoscope features a hinged tongue that can be swung 90 degrees to the right by loosening the handle. This gets it out of the way, when the card holder is slipped off, for viewing stereo pairs in *Stereo World* or other books or magazines.

To view cards again, the handle is loosened and the tongue is returned to the straight position, where it indexes in line. Other features of this large-hood, basic viewer are the same as those of the Wrayscope Model 1, seen in *NewViews* Vol. 24 No. 3. Model 2 is $120.00 postpaid in the U.S., while Model 1 is $105.00. Foreign orders add $15.00 shipping. For information or ordering, contact Jim Wray, 8921 E. 49th Pl., Tulsa, OK 74145-7320, e-mail: jimw72@swbell.net



The Wrayscope Model 2. (No, it's not for viewing around corners...)

Stephen King Tale Headed for IMAX 3-D Screen

Imax Corporation and White Cap Productions will develop an IMAX 3-D version of Stephen King's novella *The Sun Dog,* according to a recent press release. Production is expected to begin in early 2000.

The story was first published in King's best-selling collection *Four Past Midnight,* and is the story of a teenage boy who receives an instant camera for his birthday. He discovers it captures photos of things in another dimension—the world of the Sun Dog—a story element described as ideal for a 3-D film adaptation.

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5" x 7"	per	50:	$7	case of 200:	$25
BOUDOIR (5 1/2" X 8 1/2")	per	25:	$6	case of 500:	$80
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Wright Way

(Continued from page 25)

Each reel has its gems that encourage another advance of the lever, but the interior scenes, both sweeping and detailed close-ups, are almost impossible not to linger on while wondering just what it would be like to actually live in the place. (It would probably somewhere between inspirational and therapeutic, but where could you ever tack up an interesting 3-D poster?) Skillfully shot using what appears to have been only existing lighting, the views reveal both interior textures and outside vistas with only a couple of corners where a little imported light would have helped.

The original images for the *Fallingwater* reels were projected at a special 3-D showing last year at the National Building Museum in Washington by stereographer Kaplan, professor emeritus of architecture at the University of Tennessee. Since the release of *Bruce Goff: 3 Houses,* that earlier View-Master packet has been the subject of articles in art and architectural magazines like *Metropolis, Echoes, Bikini, Wallpaper,* and *The Art book.*

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ARCHITECTURAL CLASSICS in View-Master format. Now available: "Fallingwater: Frank Lloyd Wright and the 3rd Dimension." $25 postpaid, from View*Productions, PO Box 11835, Knoxville, TN 37939, (888) 782-8782.

AUTHOR OF "HOW TO CORRECTLY TAKE Super Stereo Photographs" will sell you copies of 10 of his best efforts. Color, 4x6, Loreo format. Send $4. plus 42¢ S&H to: Christopher Baer, 2501 Riverside Dr. #509A, Coral Springs, FL 33065.

BACK ISSUES OF STEREO WORLD, 75 issues up to present. $100.00 plus shipping. Rob Storms, 254 Field St.,Rochester, NY 14620.

BOOK, *The Siege at Port Arthur,* hardback with 3-D viewer. $15 Econ Air. (Cash preferred). Ron Blum, 2 Hussey Ave., Oaklands Park SA 5046, Australia.

C3D VIDEO PROCESSOR - 2D to 3D pixel shift, 3D enhancement, color etc. cleans up picture nice - like new $300 - with 2 pr LCD glasses. Brad Bishop, (310) 280-0822.

CENTRAL PACIFIC RAILROAD Photographic History Museum. Stereographs of the first transcontinental railroad are now on display at: http://CPRR.org

GERMAN 3-D "Raumbild Books. These books have thick covers with pockets that contain stacks of double-image photos with an expandable viewer. Call (425) 432-3282 or write: Ron, PO Box 611, Maple Valley, WA 98038.

IMAGE TECH - 3 lens - motor drive (3D Trio SW Vol. 25 No. 4) in underwater housing - new, $300. Brad Bishop, (310) 280-0822.

INVENTORY REDUCTION: *Civil War 3-D.* The original set with nine premium images available below production cost @$2.25 ea. Case lots only (150 count). Jim Van Eldik, 205 Jefferson Woods Dr., Peachtree City, GA 30269, (770) 487-6709.

For Sale

JOHN WALDSMITH'S "Stereo Views, An Illustrated History and Price Guide" available signed from the author, $22.95 softbound, add $2.95 postage and handling. Please note: the hardbound edition is sold out. MasterCard, VISA and Discover accepted. John Waldsmith, 302 Granger Rd., Medina, OH 44256.

MAINE ANTIQUE PHOTOGRAPHICA Gallery: www.stereoviews.com. Stereoviews and fine 19th and 20th century photography for sale. 45+ illustrated pages of photography for sale and the best links. David Spahr, 51 High Holborn St., Gardiner, ME 04345, dpahr3d@aol.com.

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STEREO CAMERAS: Postage extra. Graphic, case $200. Kodak, box, case, $175. Revere, case, extra lens and shutter assembly $200. Wollensak, case, extra lens and shutter assembly $950. Bolex movie outfit, mint $800. Glick, 517 W. Park Blvd., Haddonfield, NJ 08033.

STEREOVIEWS, CDVs, CABINETS, etc. Direct sale: send me your wants. Tim McIntyre, 137 Nile, Stratford Ontario, N5A 4E1, Canada. Tel: 519-273-5360, Fax: 519-273-7310, email: timoni@orc.ca, web page: http://www.orc.ca/~timoni. I collect: Canada and Europe views - let me know what you have.

STEREO VIEW PRICE GUIDE. Only $5.00!! Great for people buying from auctions, collectors who want to know the latest realized auction values, or for insurance companies insuring large collections. Only numbered views over $50 are listed. Doc Boehme, 5650 Brandlwood Ct., WBT, MN 55110-2275.

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WRAYSCOPES AND VIEWS - More new cards available. Write or call for updated list on *NuViews* or *Wrayscope* information. Jim Wray, 8921 E. 49th Place, Tulsa, Oklahoma, 74145-7320, (918) 664-4909, jimw72@swbell.net

Trade

MEDICAL STEREO VIEWS for sale or trade. 2 volumes of Edinburgh Stereoscopic Atlas of Anatomy, thorax, and Abdomen, in slip cases. Also, Diseases of the Skin by Rainforth, complete in 1/2 box with original stereo viewer. Want wood and brass stereo cameras, stereo lenses, views of stereo cameras, viewers and photographers. Fred Friedman, (201) 886-9228, fax (201) 886-3404 or e-mail: marenfred@aol.com.

RBT STEREOMOUNTS, viewers and 3-D items, for old reel-to-reel tape recorders, transistor radios, microphones. Pay cash too. Jon Golden Box 5077, Wayland, MA 01778, (508) 653-4166, 3dman@ziplink.net.

Wanted

1 MORE! Will buy or trade for more Mono Lake views. Old or new. Send photocopies with terms: GC Freeman, POB 18917, Sacramento, CA 95818.

ALWAYS BUYING STEREO VIEWS AND REAL PHOTOS of U.S. Mint, U.S. Treasury, and Bureau of Engraving & Printing. High prices paid for stereo views and real photos I need of U.S. Mint coining operations, Treasury and BEP paper money engraving & printing operations 1860s-1920s. Especially seeking U.S. Mint interiors and exteriors from Philadelphia; San Francisco; New Orleans; Denver; Carson City, Nevada; Dahlonega, Georgia; Charlotte, NC; plus U.S. Treasury & Bureau of Engraving & Printing operations, Washington, DC and various U.S. Assay offices. Please mail or FAX photocopy, with price and condition noted. I'll reply within 48 hours. Attn Dave Sundman, c/o Littleton Coin Co., 646 Union St., Littleton, NH 03561, FAX 603-444-3512, (est. 1945).

As one of the benefits of membership, NSA members are offered free use of classified advertising. Members may use 100 words per year, divided into three ads with a maximum of 35 words per ad. Additional words or additional ads may be inserted at the rate of 20¢ per word. Please include payments with ads. We cannot provide billings. Ads will be placed in the issue being assembled at the time of their arrival unless a specific later issue is requested.

Send all ads, with payment, to:
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(A rate sheet for display ads is available from the same address. Please send SASE.)

Wanted

AUSTRALIAN IMAGES/paraphernalia, stereo or otherwise, but not U&U/Keystone. Pay cash or trade U.S./world views. Warren Smythe, 258 Cumberland Rd., Auburn, NSW 2144, Australia, e-mail: asmythe@tig.com.au

BICYCLES, TRICYCLES, manumotive transport, & motorcycles. Stereoviews or any photograpica, memorabilia and Ephemera. Singles, duplicates or collections. Thanks! Lorne Shields, PO Box 211, Chagrin Falls, OH 44022-0211, (905) 886-6911, e-mail: vintage@globalserve.net.

CENTRAL PARK - I collect all types of photographs of New York City's Central Park (stereoviews, CDVs, cabinet cards, postcards, etc.) 1850-1940. Herbert Mitchell, 601 W. 113th St. Apt. 8-H, New York, NY 10025-9712, (212) 932-8667.

CHARLES WEITFLE - I'm collecting views by me great-grandfather. If you are interested in selling or trading, please contact me. Paul L. Weitfle Jr., 10309 Gentlewind Dr., Cincinnati, OH 45242, (513) 793-4815, pweitfle@aol.com.

CHINESE BOXER REBELLION/Chinese crime and punishment/Russo-Japanese War - Please enclose titles and condition - to Harry Jarosak, PO Box 92, Stormville, NY 12582.

COLLECT, TRADE, BUY & SELL: 19th Century images (cased, stereo, Cdv, cabinet & large paper) Bill Lee, 8658 Galdiator Way, Sandy, UT 84094. Specialties: Western, Locomotives, Photographers, Indians, Mining, J. Carbutt, Expeditions, Ships, Utah and occupational

CORTE-SCOPE VIEWS or sets, any subject or condition. No viewers unless with views. John Waldsmith, 302 Granger Rd., Medina, OH 44256.

EDWARD ANTHONY'S "California" series stereoviews. Numbers 1 to 41. These are views of Yosemite. Charles Richie, 5033 V St., Sacramento, CA 95817-1510, (916) 737-0108, e-mail: charles.richie@ucdmc.ucdavis.edu

FLORIDA STEREOS of historical value, especially Tallahassee, Tampa and Gainsville: Price and describe or send on approval; highest prices paid for pre-1890 views. No St. Augustine. Hendrickson, PO Box 21153, Kennedy Space Center, FL 32815.

I BUY ARIZONA PHOTOGRAPHS! Stereoviews, cabinet cards, mounted photographs, RP post cards, albums and photographs taken before 1920. Also interested in Xeroxes of Arizona stereographs and photos for research. Will pay postage and copy costs. Jeremy Rowe, 2120 S. Las Palmas Cir., Mesa, AZ 85202.

I COLLECT VIEWS OF SAN DIEGO, California in Realist or View-Master format! Contact Dave Weiner, PO Box 12193, La Jolla, CA 92039.

I'M LOOKING FOR the following 1950s Realist Permamount slides from "The Realist Library of Scenic Stereo Originals": 410, 413, 504, 922, 3100, 3112, 3113, 4100, and 4101. Mark Willke, 200 SW 89th Ave., Portland, OR 97225. (503) 797-3458 days.

MAGIC LANTERN SLIDES: 3 1/4 x 4", photographic, advertising, coming atttractions. Related ephemera. Tom Rall, 1101 N. Kentucky St., Arlington, VA 22205, (703) 534-7612, fax 534-0285 e-mail: marketflea@aol.com

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MISC. VIEWS OF IRELAND or related singles/sets. List/prices to K.J. Dalton, 357 Unity Rd., Trumbull, CT 06611-4934.

MUYBRIDGE VIEWS - Top prices paid. Also Michigan and Mining - the 3Ms. Many views available for trade. Leonard Walle, 47530 Edinborough Lane, Novi, MI 48374.

NEED PHOTOS AND INFO on Dakota. N. Dakota and S. Dakota photographers (stereo, postcard, any format) before 1920. Examples: Howard, Mitchell, Rodacker & Blanchard, Illingworth, Pollachand Boyden, Cross, and any others. R. Kolbe, 1301 S. Duluth, Sioux Falls, SD 57105.

NEW YORK CANALS and related views. Erie, New York Barge, Genesee, Champlain, Black River, Chemung, Delaware and Hudson, and other U.S. canals or L. Prang related material. Carl Wampole, PO Box 245, Nesconset, NY 11767, (516) 724-4311 or: CarlorCollette@att.net.

PARK CITY, UTAH wanted. Enthusiastic collector of Park City stereo views, postcards, mining history, stocks, etc. Thanks in advance for looking in your collection - in appreciation, Linda Roberts, 1088 East Rubio St., Altadena, CA 91001.

SARATOGA AND SARATOGA SPRINGS, NY stereos wanted. Send priced photocopies or original stereos on approval. All postage paid for approvals. James B. Dorsey, 42 Saratoga Circle, Saratoga Springs, NY 12866.

SHAKER photos wanted. Please send xerox copy with price. Richard Brooker, 23 Old Kings Highway, Wilton, CT 06897.

SINGLE VIEWS, or complete sets of "Longfellow's Wayside Inn" done by D. C. Osborn, Artist, Assabet, Mass., Lawrence M. Rochette, 169 Woodland Drive, Marlborough, MA 01752.

STEREOVIEWS WANTED of Saint Lawrence River Thousand Islands region of northern New York State, especially those by McIntyre. D.L. Grant, 15451 Lyellton Dr., Clayton, NY 13624.

STEREO DAGUERREOTYPES; all kinds, all nations & subjects. Any condition. Ken Appollo, PO Box 241, Rhinecliff, NY 12574, (914) 876-5232.

Wanted

STEREO REALIST 1525 Accessory Lens Kit for Macro Stereo Camera; Realist 2066 Gold Button Viewer; Realist 6-drawer stereo slide cabinet in Exc.+ or better condition (must contain Realist logo); Baja 8-drawer stereo slide cabinet with plastic drawers marked "Versafile". Mark Willke, 200 SW 89th Ave., Portland, OR 97225. (503) 797-3458 days.

STEREO VIEWS or photographs of any kind showing streetcars in Scranton, PA or the Scranton area. Charles Wrobleski, 206 Green St., Clarks Green, PA 18411.

TREASURY BUILDING, Washington, DC images wanted. Particularly interested in construction photographs and interior views of Cash Room, offices, press rooms, vaults, etc. Mail or fax copies with price to: Paula Mohr, Office of the Curator, Room 1225, Department of the Treasury, Washington, DC 20220, fax (202) 622-2294; phone (202) 622-1250.

UTAH & NEVADA! Albumen photos, stereos to mammoth plates, esp. Savage, O'Sullivan, Russell, Hillers, Jackson, etc. Bryan Furtek, 476 E. South Temple #236, Salt Lake City, UT 84111, (801) 532-6865.

WEST VIRGINIA stereoviews, CDVs, photo postcards and other older photography relating to West Virginia, including Fairmont, Harper's Ferry, Morgantown, Parkersburg, Weston, Wheeling and other places. Tom Prall, PO Box 155, Weston, WV 26452, wvabooks@aol.com.

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WANTED
for an Upcoming *Stereo World* Feature:

Author needs stereoviews of the Civil War era locomotive "The General" in any format including Tru-Vue, View-Master, etc. Amateur stereos from the Civil War Centennial and 1964 New York World's Fair including this and other vintage locomotives are also of interest.

Send descriptions or photocopies to:

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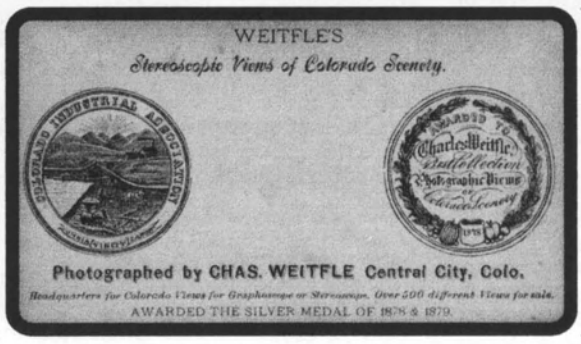
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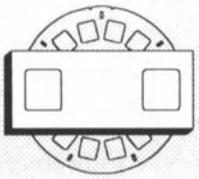

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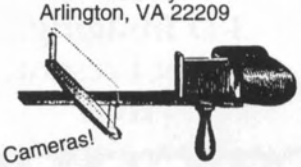

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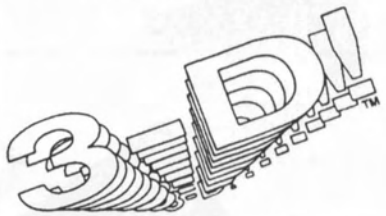

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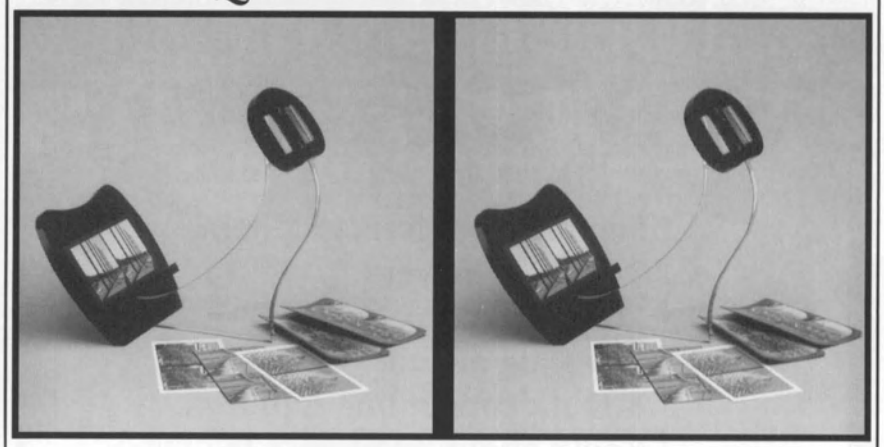

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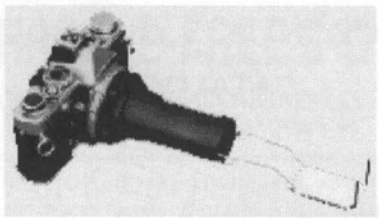

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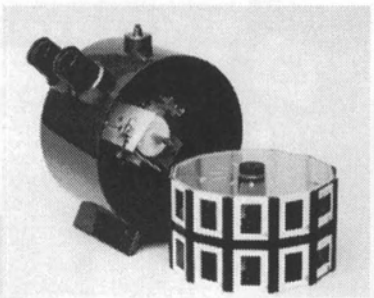

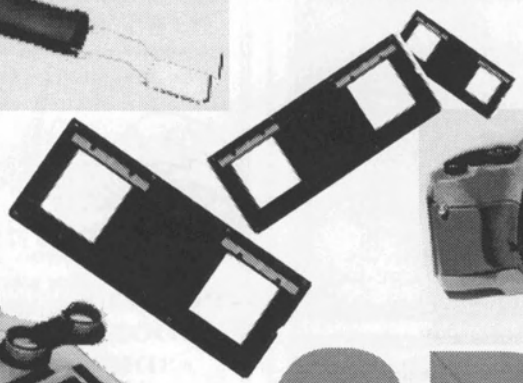

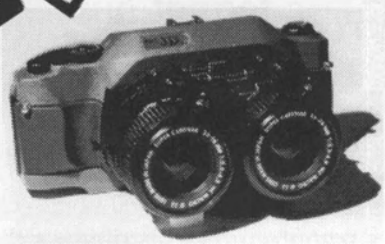

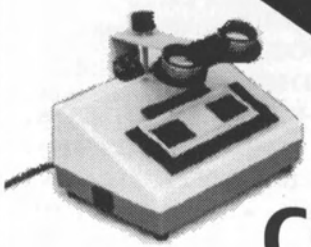

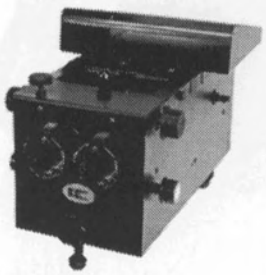

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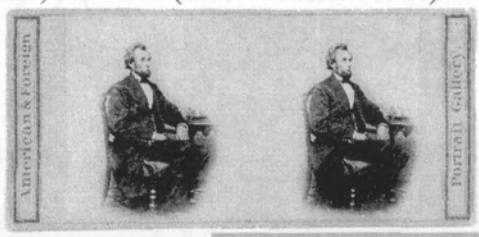
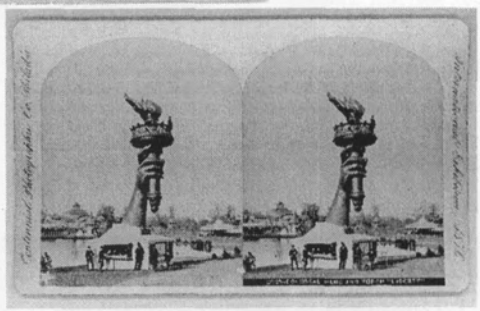


Anthony #2968 Abraham Lincoln Sold for $1705.

Centennial Photographic Co. #2025 Liberty Hand at the Philadelphia 1876 Exhibition Sold for $490.



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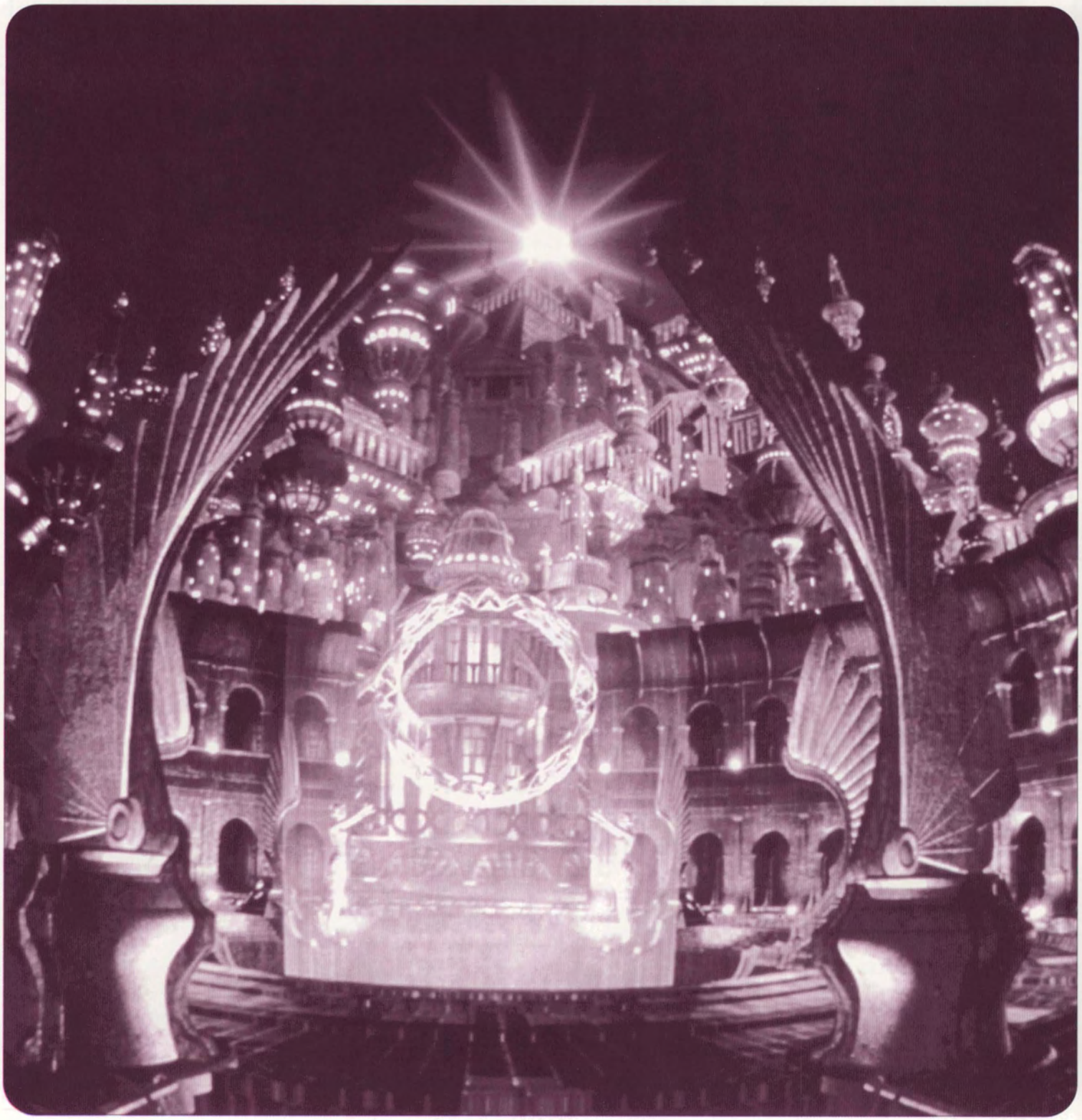
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